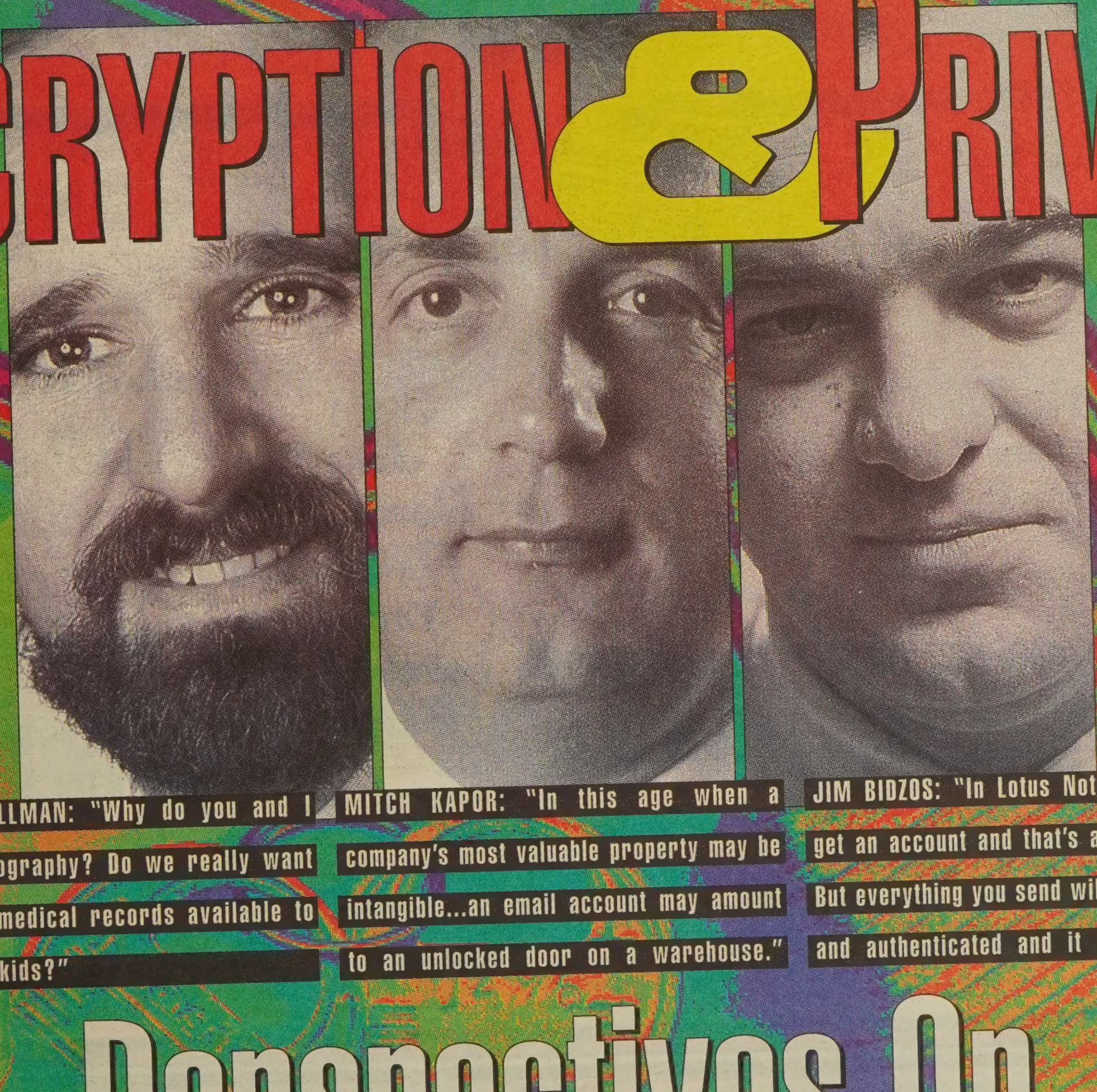
Northern California's Computer Magazine
March 8, 1993•#106

FREE

MICROTIMES™

ENCRYPTION & PRIVACY



MARTIN HELLMAN: "Why do you and I need cryptography? Do we really want all of our medical records available to highschool kids?"

MITCH KAPOR: "In this age when a company's most valuable property may be intangible...an email account may amount to an unlocked door on a warehouse."

JIM BIDZOS: "In Lotus Notes, you would get an account and that's all you'd know. But everything you send will be encrypted and authenticated and it works great."

Perspectives On Digital Security

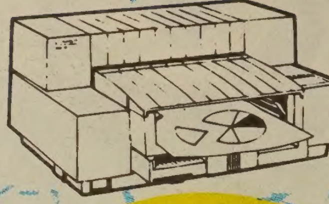
NEW SECTION INSIDE

MultiMedia & Beyond

Savings Headquarters

FRY'S AND HP KNOW HOW TO MAKE WAVES!

HEWLETT PACKARD
Authorized Dealer
A 50 YEAR TRADITION OF QUALITY.
HP DELIVERS PC PRODUCTS YOU CAN DEPEND ON.



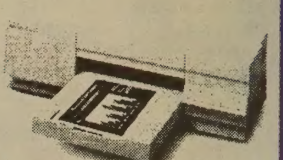
DeskJet 500C Color InkJet Printer

COLOR INKJET OUPUT AT 300 DPI!

Prints in Color or
Black and White
100 Sheet Paper Feeder
Whisper Quiet
3 Year Warranty #1632480

$499.99

Color PaintJet XL300

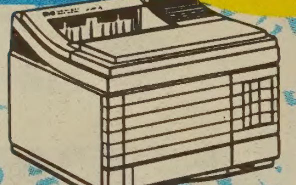


HP C2856A Color Graphics Ink Jet Printer

300 DPI Plain Paper
200 CPS NLQ
Prints on Transparency Film & Paper
360 Colors addressable, over 16.5 million color available
#1688986

$2299.99

LaserJet 4

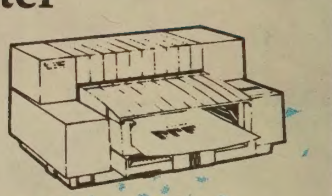


Fast 8ppm printing for complex documents
45 Scalable Fonts • 2MB RAM
600 DPI Print Quality at a 300 DPI Price
300 Page Paper Capacity
Ideal for Windows & Graphics
Optional Full Network Capabilities
#1734140

CALL FOR BEST PRICE

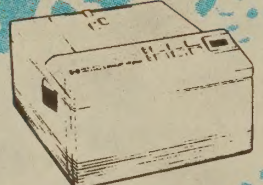
DeskJet 500 Inkjet Printer

300 DPI LASER QUALITY
Scalable Fonts for MicroSoft Windows 3.0
Water Resistant Ink
Character Kerning for Improved Letter Spacing
Whisper Quiet • Three Year Warranty
#1529128



$361.95

LaserJet IIP+

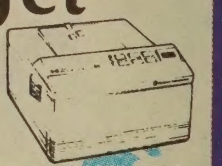


Personal Laser Printer with the fastest "Business Speed" in the business!

4 Pages/Minute • PCL4
Parallel Interface
512K Expandable to 4.5MB
70 Page Input tray
#1625930

$736.95

LaserJet IIIP



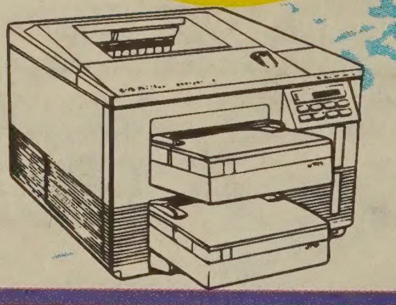
Resolution Enhancements Yield The Highest Quality Laser Output! 8 SCALABLE Fonts
14 Bit-Mapped Internal Fonts •1MB RAM
4 Pages/Minute • Serial/Parallel
Poscript Upgradeable #1584062

Join the Revolution in Resolution! You won't believe it's not 600 DPI

LaserJet IIISi

17 Pages Per Minute • 300 DPI Resolution
1MB Expandable to 17MB
2 Input Trays • 1000 Sheet Paper Capacity
14-Bit Mapped Fonts • 13 Scalable Typefaces
2 Font Slots • 4 Memory Slots #1567656
You won't believe it's not 600 DPI

THE PERFECT NETWORK SHARED PRINTER!



DeskJet 550C Color InkJet Printer

COLOR INKJET OUTPUT AT 300 DPI!
Prints in Color or Black and White at the same time
100 Sheet Paper Feeder • Serial/Parallel
13 Scalable Fonts for Windows • 84 DOS Fonts
Whisper Quiet • 3 Year Warranty
#1733703

$699.95

Fry's ELECTRONICS
Home of Fast, Friendly, Courteous Service

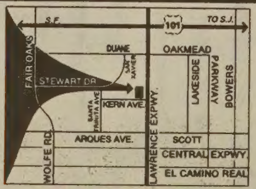
Prices good thru March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

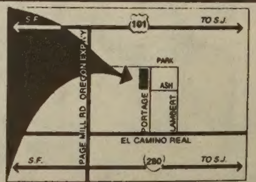
STORE HOURS
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD ACCEPTED

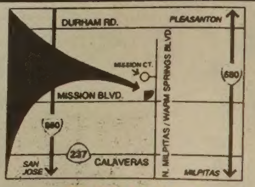
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
WOLFE RD.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

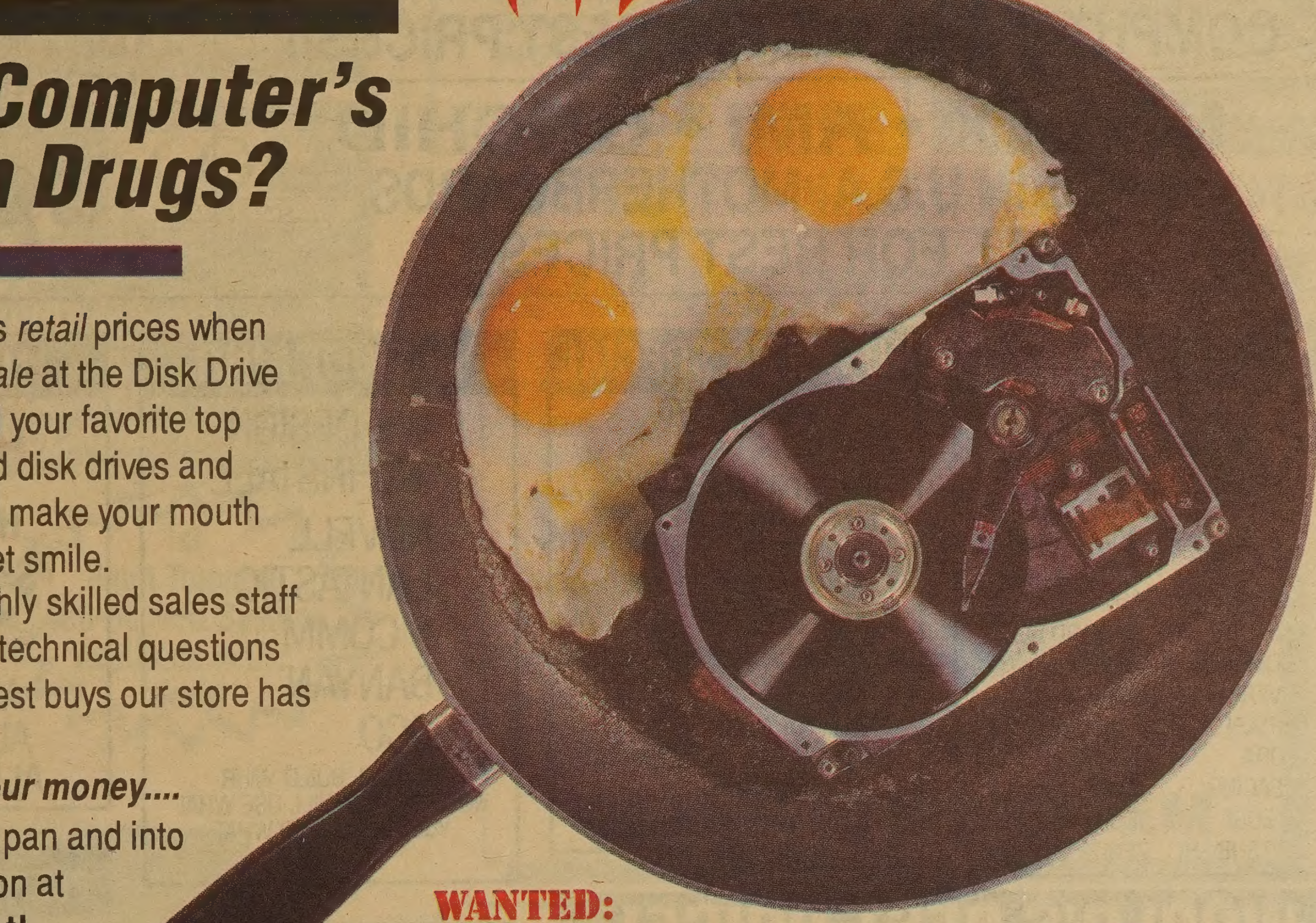
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
N. MILPITAS / WARM SPRINGS BLVD
680
MISSION BLVD.
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

DON'T GET FRIED!

Is Your Computer's Brain On Drugs?



Why pay outrageous *retail* prices when you can pay *wholesale* at the Disk Drive Depot? We carry all your favorite top quality, name -brand disk drives and accessories that will make your mouth water and your wallet smile.
Our friendly and highly skilled sales staff can answer all your technical questions and show you the best buys our store has to offer..

Stop burning up your money....
Get out of the frying pan and into the fireworks going on at the **Disk Drive Depot!**

WANTED:
We buy CD-ROM Software. Browse through our extensive selection of new disks and trade in your old ones...

- Full Year Warranty -
Standard 1 year warranty on these drives. 5 year warranty is optional (and inexpensive).

Scramble on over and check out our HARD DRIVE SPECIALS!

Jumbo 800MB Maxtor Optical Drives ***$395!!****

Extra Large, grade A Micropolis 1578 330MB SCSI drive with a sizzling access time of 16ms ***$495!***

Hot off the Platter- Maxtor 8760S 640MB runs at a scorching 16ms SCSI Drive ***$895!****

Prepared just the way you like 'em.. CD-ROM SUPER SPECIALS!

Palatable to your pocketbook -Tandy CDR 1000 CD ROM w/ Audio output and PC interface card ***$195!***

Chef's Special- NEC CDR-36 portable SCSI, multimedia CD ROM ***$295!***

Pre-formatted Kits Available for all MAC, SUN, and PC Applications.

ALL DEALERS: We offer Dealer Discounts to Resellers for purchases of 2 or more identical units. Just bring in a valid California State Resale Card and SAVE EVEN MORE!

We Gladly Accept Visa or MasterCard

(Please present coupon with purchase)

FREE! SCSI Controller
This coupon entitles the bearer to one FREE Storage Dimensions Data Cannon SCSI hard drive controller with any SCSI drive.
EXPIRES 3/28/93. NOT VALID WITH ANY OTHER COUPON OR DISCOUNT.

$50.00 OFF!
This coupon entitles the bearer to $50.oo off of ANY PURCHASE over $300.oo at the Disk Drive Depot.
EXPIRES 3/28/93.
NOT VALID WITH ANY OTHER COUPON OR DISCOUNT.

DISK DRIVE DEPOT

TEL: (408) 738-3895
FAX: (408) 738-3896

DISK DRIVE DEPOT
500 Lawrence Expressway,
Sunnyvale, California 94086

Located on the nice side of the street - Opposite Wierd Stuff.
Quantities are limited on some items, and prices are subject to change without notice.
** Star indicates factory refurbished - All other drives are Factory New.*

TENS OF THOUSANDS OF OUR SYSTEMS SOLD SINCE 1983 ARE STILL IN USE!!

BUSINESS IS BOOMING!

IBM • Apple® • COMPAQ
NEC • TOSHIBA • H.P.
AST • ALR • NOVELL
COMPUTERS...CALL FOR BEST PRICES!!

MYLEX • AMI • ORCHID
MADE IN U.S.A. MOTHERBOARDS
CALL FOR BEST PRICES!!

486-50 MHz BASE SYSTEM LOCAL BUS

Motherboard + Case
+ Power Supply
+ 101 Keyboard
+ 1MB + 1.2 Floppy
+ INTEL 486-50 DX2 CPU

ONLY

$899

COMPUTERS

CALL FOR BEST AVAILABLE PRICES!!

AT&T
ALR
ACER
AMI
APPLE
AST
COMPAQ
EVEREX
EPSON
FORA
LEADING EDGE
MITSUBISHI
MYLEX
MICRONICS
MITAC
NEC
PANASONIC
PACKARD BELL
SUN
SAM WORKSTATION
SAMSUNG
TAXAN
TOSHIBA
ZENITH

BUSINESS SPECIAL

486/50/66

- 200 MB
- 1.2 & 1.44 MB FLOPPY
- 8 MB RAM + FAX/MODEM
- TAPE BACK-UP
- VGA CARD
- VGA MONITOR
- SCO UNIX
- NETWORKING

LEASE OR FINANCE FROM $100 PER MONTH

NETWORKING

WE DESIGN AND INSTALL

NOVELL
LANTASTIC
3 COMM
BANYAN
SCO

WE WILL BUILD YOUR NETWORK WE WILL USE WHAT YOU HAVE & ADD WHAT IS NEEDED

NOTEBOOK

486-33
w/130 MB HARD DRIVE

$2299

TOSHIBA, APPLE, NEC, ALR, & MORE ALL AVAILABLE

WORLD'S BEST PRICE!

ACS 486-33 MHz . . $1190

- 4 MB RAM Expandable to 32 MB On Board
- 120 MB, 16ms Hard Drive
- 1.2 MB, 5¼″ Floppy Drive
- 1:1 Interleave 2 Hard/2 Floppy Drive Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 16-Bit SVGA Card
- 14″ SVGA Color, 1024x768, 0.28mm Dot Pitch Display
- Clock/Calendar with Battery Back-up
- 8 Expansion Slots
- 3 Button, Hi-Resolution Serial Mouse
- CYRIX CPU

OPTIONS

• 50/66 MHz Local Bus	CALL
• 200/340 MB Hard Drive	Add $200/425
• Viewsonic 6 Monitor	Add $95
• Tseng Chip VGA Card	Add $80
• Orchid IIS w/1 MB	Add $95
• Memory Per Megabyte	Add $40

HARD DRIVES

100 MB DRIVE	$255
120 MB DRIVE	299
200 MB DRIVE	450
670 MB DRIVE	1290
1.2 GIGA DRIVE	1780
1.2 GIGA TAPE B-UP	1690

MONITORS

LARGE MONITORS 20", 21", 37"
ALL MODELS
ALL BRANDS
CALL FOR BEST PRICES

PLOTTERS/ DIGITIZERS

SUMMA SKETCH . . $325
CALCOMP . . . . BEST PRICE
HITACHI
HP
KURTA
ROLAND
MICROTEK
LOGITECH
ALL PLOTTERS & DIGITIZERS

PRINTERS

LASER
HP LASER IV $1375
IBM
APPLE
EPSON
OKIDATA
QMS
FUJITSU
QUME
PANASONIC
NEC

ADVANCE COMPUTER SYSTEMS

Delivery & Installation Available
3 LOCATIONS TO SERVE YOU

SUNNYVALE - 665 GRAPE AVE. (408) 732-6200, FAX: (408) 749-9449
WALNUT CREEK - 1987 N. MAIN ST. (510) 945-8011, FAX: (510) 945-4941
SAN FRANCISCO - 1231 MARKET ST. (415) 552-2902, FAX: (415) 730-6217

(A) Prices subject to change w/o notice
(B) Financing Available
(C) Not responsible for typo error
(D) Installation Extra
(E) Subject to stock on hand
(F) Prices vary at stores
(G) Toner extra
(H) Visa, mastercard

SPECIAL FOR ENGINEERS/SOFTWARE DEVELOPERS

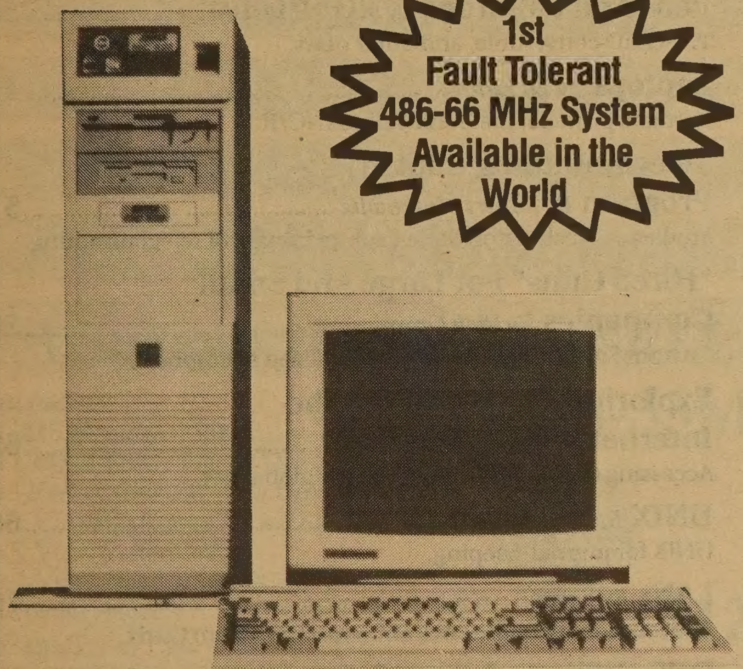
Used By AT&T

To Demonstrate Their
UNIX Systems, Release 4
At UNIX Symposium
Dallas, New York & London

Used By Santa Cruz Operation-

SCO THE SANTA CRUZ OPERATION

The world's largest UNIX software developer-to exhibit their software at UNIXFORUM 1990, Washington, DC. THAT IS HOW GOOD OUR COMPUTERS ARE!



1st
Fault Tolerant
486-66 MHz System
Available in the
World

GRAPHICS WORKSTATION

- 37" MONITOR
- 486-66 MHz
- 32 MB RAM
- CD ROM
- 1.2 GIGA HARD DRIVE
- 1.2 GIGA TAPE BACK-UP
- 32 BIT VIDEO CARD
- COLOR LASER PRINTER
- VENTURA, GEM PHOTOLAB

CALL FOR PRICE

PORTABLE 486-66

- *Up to 66 GIGA Hard Drive*
- *Up to 96 MB RAM*
- *Good for UNIX, NOVELL, DOS, OS/2*

CALL FOR PRICE

486 EISA/ISA/LOCAL BUS PORTABLE

SEE US AT UNIFORUM - MARCH 17-19 - MOSCONE CENTER

SAM 486 WORKSTATION

- 486-66 MHz EISA/LOCAL BUS
- 256K CACHE
- 32 MB Memory EXPANDABLE TO 96 MB
- 20"/37" MONITOR
- 1280x1024 TISA
- AUTO CAD
- 32 BIT NETWORK CARD
- DIGITIZER/PLOTTER
- MULTIMEDIA
- 2.2 GIGABYTE SCSI HARD DRIVE CONFIGURED (EXPANDABLE TO 50 GIGABYTE)
- 1 GIGABYTE TAPE EXPANDABLE TO 50 GIGA
- SERVER CASE
- UNIX/NOVELL/OS-2/DOS/3COM

COMPLETE SYSTEM

USE ANY BASE SYSTEM FOR FILE-SERVER or ENGINEERING WORKSTATION

•Apple Quadra •IBM, IBM 6000
•Sun •Sun Compatible •Compaq System Pro
•AST •DELL •Northgate •ALR
•SAM Workstation •Hewlett Packard
•ACER •AMI •Mylex

- With Up To 96 MB Memory
- 1 GB Up To 50 GB Hard Drives
- 14" Up To 37" Monitor
- Super Fast Video Cards
- SCO Unix, Novell, AutoCAD, OS/2, DOS, 3Com

CALL REGARDING ANY CONFIGURATION & BEST PRICE

ADVANCE
COMPUTER SYSTEMS

3 LOCATIONS TO SERVE YOU

SUNNYVALE
665 Grape Ave.
(408) 732-6200
Fax: (408) 749-9449

WALNUT CREEK
1987 N. Main St
(510) 945-8011
Fax: (510) 945-4941

SAN FRANCISCO
1231 Market St.
(Inside San Francisco
Hotel Mezzanine Floor)
(415) 552-2902
Fax: (415) 730-6217

Leasing & Financing Available

MAR. 8, 1993 MICROTIMES ISSUE #106

Editorial (510) 934-3700
Advertising (510) 934-3700 (408) 244-4400

TABLE OF CONTENTS

A NOTE FROM THE EDITORS

Digital communications, a boon to businesses and individuals alike, have brought with them new problems, notably an increase in all sorts of digital snooping and invasive behavior.

Encryption, which seems to be the most likely techno-fix for the problem, is rapidly becoming a standard feature of applications and operating systems. And, as always, with new solutions come new problems.

In this issue, Mitch Kapor discusses email privacy in the wake of Borland Vs. Symantec, and we visit cryptography expert Martin Hellman and RSA Data Security President Jim Bidzos for some inside perspectives. Other aspects of the situation emerge in Robert Steele's piece on redefining national security, and Michael Robin's article on John Gilmore's quest for crypto texts.

—*ME*

COVER STORY

Encryption & Privacy

Perspectives On Digital Security

Computer Spies 107

By Mitchell Kapor
The implications of the Borland-Symantec electronic mail incident for business.

Encryption, Privacy, And Data Security .. 111

By Mary Eisenhart
Once the esoteric province of the military and diplomatic communities, encryption is playing an increasingly vital role in digital communications, with applications ranging from secure cellular phones to protection of intellectual property. But, as with all new technologies, encryption is stirring debate as to its proper use.

Information Worlds Collide 124

By Robert David Steele
CIA veteran and Open Source Solutions founder Steele argues for a new definition of "national security."

Cipher Codes And Freedom Of Information 125

By Michael Robin
Privacy advocates meet the NSA.

Micro Marketplace
Special Advertising Section For Bay Area Computer Buyers Starts On Page 90

NEWS AND VIEWS

Letters 19

Industry Insight *By Paul Hoffman* 20
STAC Sues Microsoft 20
Windows NT News 22
MicroTimes Stock Index 29

Realizable Fantasies *By Jim Warren* 30
Public access to public records, continued.

Guest Editorial: Copyright Infringement Goes Big Time *By Robert A. Spanner, Esq.* 36
Attorney Spanner takes issue with the recently passed federal legislation that imposes draconian criminal penalties for copying software.

Dvorak's Last Column *By John C. Dvorak* 314
Dvorak discovers the Five Warning Signs of Computer Disease.

BUSINESS SOLUTIONS

Pens And Palmtops *By Mitsu Hadeishi* 38
The GRiD convertible, and other news.

Laptops *By Ed Kahn* 44
Portable printers; the Bondwell 486NC/R.

Telecommuting Pilot Program *By Robert Moskowitz* 51
Studies at Washington State explore impact of telecommuting.

"Hired Guns" For Large And Small Companies *By Rich Grace* 59
Custom Software Inc. creates specialized solutions.

Exploring The World On The Internet *By Peter John Harrison* 65
Accessing useful information on the global net.

UNIX *By Bennett Falk* 68
UNIX for journal-keeping.

LANs *By Yacco* 76
A revolutionary multi-environment server from Citrix.

DIY—Wills And Trust Software *By David A. Simon, CPA, and Jennifer Robin Cherniss* 80
Do-it-yourself wills and trusts.

FEATURES

Amiga Does Windows *By Douglas J. Nakakihara* 128
Emulating a 486 on the Amiga.

BMUG *By David Morgenstern* 132
Macworld Expo report.

What Makes A Good BBS? *By Kathleen Creighton* 153
BBS columnist Creighton offers advice for sysops and would-be sysops.

Safe Typing *By Birrell Walsh* 156
An ergonomic keyboard from Kinesis.

Buying A "Killer" PC For Under $2000 *By Bill Darden* 186
A pre-shopping list of decision points.

ISDN Telephone Services *By Robert Moskowitz* 194
A look at the technology for proposed national data highways.

Challenge the Limits !

BEST PRICE
BEST SERVICE
BEST PRODUCTS

SALE

Complete Systems Include:
- 4Mb Memory
- 1.44Mb and 1.2Mb TEAC Floppy Drive
- 1:1 FD/HD Controller w/2serial,Parallel,Game
- S-VGA Card (512K) w/S-VGA Monitor 1024X768 (0.28DP)
- 101 Enhanced Keyboard
- DeLuxe Mini Tower Case

	120Mb HD	213Mb HD
486DX2-66MHz Micronics EISA	$2249	$2349
486DX2-66MHz VESA Local Bus	$1669	$1769
486DX-33MHz VESA Local Bus	$1399	$1499
486DX2-66MHz	$1569	$1669
486DX-50MHz	$1459	$1559
486DX-33MHz	$1299	$1399
386DX-33/40MHz	$ 999	$1099

Windows Workstation SALE !

486-33Mhz

Include:
- 4Mb Memory; 256K Cache
- 1.44Mb TEAC Floppy Drive
- 120Mb CONNER Hard Drive
- 1:1 FD/HD Controller w/2S/P/G
- S-VGA Card (512K)
- S-VGA Monitor 1024X768 (0.28DP)
- 101 Keyboard
- Mini Tower Case with 200W P.S.

Free Windows 3.1

$1299

Special of the Month

486-66/50Mhz

Include:
- 4Mb Memory; 256K Cache
- 1.44Mb TEAC Floppy Drive
- 120Mb CONNER Hard Drive
- S-VGA Card w/512K
- 14" S-VGA Color Monitor 0.28dpi
- 1:1 FD/HD Controller w/2S/P/G
- 101 Enhanced Keyboard
- DeLuxe Full Size Tower Case

Free Mouse

$1569/1459

SPECIAL UPGRADES

Item	Price
120Mb IDE 17ms Hard Drive	$225
213Mb IDE 15ms Hard Drive	$315
SONY CD-ROM Drive CDU 31A	$265
SONY CD-ROM with Sound Blaster Pro Sound Board	$399
120Mb Colorado Tape Backup	$169
250Mb Colorado Tape Backup	$229
Microsoft's Sound System	$195
Sound Blaster Pro Sound Brd.	$155
8 port active hub (coax)	$120
CMGP Card w/2Serial,Parallel	$10
Slim Case with P/S	$40
101 Keyboard	$20

American Multisystems, Inc
InfoGOLD 486-50
" EXPERT PICK "
MARCH 1993

"With brilliant graphics performance, the InfoGOLD 486-50 makes one smart choice as a Windows workstation"

Windows Sources
The Magazine for Windows Experts

408/524-9091

WINDOWS NT WORKSTATION

ATTENTION NT DEVELOPERS, CORPORATE USERS !

We have single and multiple CPU
NT MACHINES !
Servers or Workstations

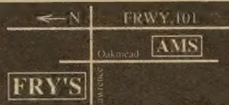
- FOR SOFTWARE DEVELOPERS
- DOWN SIZING
- NETWORKING
- ENGINEERING

run WINDOWS NT today

Our Satisfied NT Customers: Hitachi Corp.; Hewlett Packard; University of BP.; etc...

Terms and Conditions:
All prices reflect cash discount. One Year Warranty on Parts and Labor. 30 Day Satisfaction Guaranteed on all products. All returns are subject to approval. 15% restocking fee for all returns. All prices subject to change without notice. Not responsible for typos.

AMS



Since 1986

538 Oakmead Pkwy. Sunnyvale California 94086

CALIFORNIA
Computer
Show
& Sale

LOWEST PRICES
IN THE USA!
PC Compatibles • Hardware
• Software • Accessories

UPCOMING
SHOWS

OAKLAND COLISEUM
March 13, 1993 • I-880 & Hegenberger, Oakland

SAN MATEO EXPO CENTER
March 20, 1993 • 2495 South Delaware, San Mateo

SANTA CLARA COUNTY FAIRGROUNDS
March 27, 1993 • 344 Tully Rd., San Jose

COW PALACE
April 10, 1993 • Corner of Geneva & Santos, SF

OAKLAND COLISEUM
April 17, 1993 • I-880 & Hegenberger, Oakland

ALAMEDA COUNTY FAIRGROUNDS
April 18, 1993 • 4501 Pleasanton Ave., Pleasanton

SANTA CLARA COUNTY FAIRGROUNDS
April 24, 1993 • 344 Tully Rd., San Jose

All Shows from
10a.m. to 4p.m.
Admission: $6⁰⁰
Children under 12 FREE
FOR INFO. CALL
1-800-685-1400
BBS: 415-340-9370

$1⁰⁰ OFF
Good For All
Of The Above Shows.
Limit 1 discount coupon per person.
Regular Admission $6⁰⁰
Copies accepted.
No other discounts apply.

MAR. 8, 1993 ISSUE #106
MICROTIMES

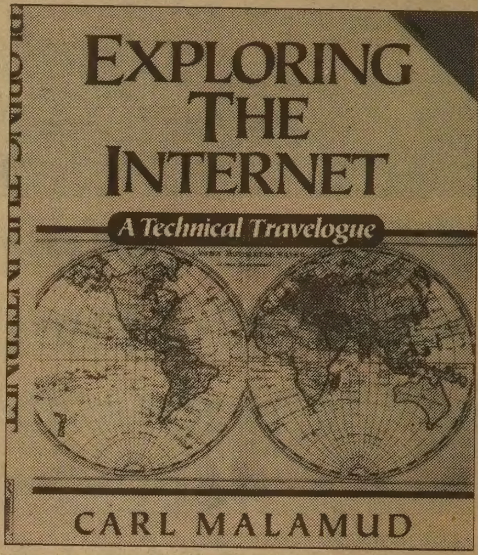
TABLE OF CONTENTS

PRODUCT SPOTLIGHT

Product Updates 231
New Products
Macintosh Hardware
Macintosh Color Classic 231
Color PowerBook 165c 231
Centris 610 And 650 231
LaserWriter Select Series 231
PC Hardware
IQE PrintNet 232
ADDA Video Cards 232
PC Software
IDF Identifile 232
Generic 3D Release 2 232
Macintosh Accessories
Mac DisplayLink 232
NiteCaps 232

Reviews
Games *By Mike Markowitz*
Oxyd 232
Yearn 2 Learn: Peanuts 234
The Lost Tribe 234
PC Hardware
EZTape For Windows 236
Macintosh Hardware
GCC WriteMove II 236
Macintosh Software
The Chronosphere 238
Just Joking 238
Magnet 240
Wraptures One 248

Books
The AREXX Cookbook 248
Jamsa's 1001 DOS & PC Tips 250
Exploring The Internet 252
The Internet Companion 308



PCs From Scratch 308

RESOURCES

Calendar Of Events 254
Tech Talk: Nanotechnology 254
EIS And Beyond 256
User Group Network 263
This month's BBS spotlight: Peapod
Classifieds 274
City-Based Index Of Advertisers..310
Index Of Advertisers 312

MULTIMEDIA & BEYOND

MultiMedia & beyond

MultiMedia & beyond 283

In this month's section, Jonathan E. begins his Multimedia 101 series, exploring the technology's potential and current reality. Also, Tony Reveaux gets an inside look at the new Adobe Photoshop, and Judy Malloy talks about online resources for artists.

What's New With Photoshop 284

By Tony Reveaux
Adobe senior product marketing manager (and former *MicroTimes* writer) Steve Guttman gives the inside scoop on Photoshop 2.5.

Multimedia 101 292

By Jonathan E.
An introduction to the technology—what's here, what's vaporware, and what's possible.

Online Art 298

By Judy Malloy
Modems link the artist community.

KING STAR COMPUTER, INC.

SUPER MULTIMEDIA SYSTEM

- 486DX-50/128K Cache From Basic System
- 4 MB up to 32 MB RAM
- Sound Blaster Pro
- CD-ROM Drive Internal
- 200 MB Hard Drive 15ms
- 14" SVGA Monitor .28 1024x768
- ATI VGA Wonder XL24
- MS DOS 5.0 w/Manuals

$1955

Landmark 223 MHz Basic System
486 DX2-66 MHz/256K EISA VESA **$999**

Landmark 167 MHz Basic System
486 DX-50 MHz/256K EISA VESA **$899**

Landmark 168 MHz Basic System
486 DX-50 MHz/256K/2 Local Bus VESA **$839**

Landmark 113.44 MHz Basic System
486 DX-33 MHz/128K/2 Local Bus VESA **$659**

Landmark 167 MHz Basic System
486 DX-50 MHz/128 ISA **$759**

Landmark 113 MHz Basic System OPTI
486 DX-33 w/64K **$595**

Landmark 54 MHz Basic System/62 MHz
386 DX-33 MHz/64K/40 MHz + $10 **$329**

Landmark 30 MHz Basic System OPTI
386 SX-25 MHz/33 MHz +$10 **$269**

Landmark 16 MHz Basic System/21 MHz
286-12 MHz/20 MHz + $10 **$229**

Landmark 89 MHz Basic System OPTI
486DC-33 MHz/128K **$429**

Landmark 106 Basic System OPTI
486DLC-40 MHz/128K **$499**

BASIC SYSTEM INCLUDES

Motherboard & CPU • 1MB of Memory • 1.2MB or 1.4MB Floppy Drive
2 Serial • 1 Parallel Port • 1 Game Port • Case w/ Power Supply
1:1 2HD/2FD Controller • 101 Enhanced Keyboard

486-33 MHz 128K

- Basic System Configuration
- 200 MB Hard Disk IDE 15ms
- 14" SVGA Monitor/Impression SVGA Card w/512K

$1,199

486-50 MHz 128K

- Basic System Configuration
- 200 MB Hard Disk IDE 15ms
- 14" SVGA Monitor/ Impression SVGA Card w/512K

$1,336

386-40 MHz 128K

- Basic System Configuration
- 120 MB Hard Disk IDE 15ms
- 14" SVGA Monitor/Impression VGA Card w/512K

$816

386SX-25 NOTEBOOK

- 80386SX-25 MHz/387SX Socket
- 2 MB RAM to 6 MB
- 1.44 MB Floppy Disk Drive
- 60 MB Hard Drive
- Serial/Parallel Port/Clock

HALIKAN **$1,089** 80 MB+$40

MONTHLY SPECIALS

486DX2-50/66 MHz, 2 LOCAL BUS BOARD w/256K	$160
120 MB TAPE BACK-UP, DJ-10/SOFTWARE	155
CD-ROM MITSUMI, 350MS INTERNAL	205
14" SVGA MONITOR/SVGA CARD 512K	249
386DX-40 MHz/64K/CPU OPTI CHIP BOARD	149
200 MB IDE HD	305
130 MB IDE 15ms HD	215
240 MB IDE 9ms QUANTUM	365
14400/14400 FAX MODEM V.42 S/R	180

DRIVES

40 MB IDE	$130
80 MB IDE	179
105 MB IDE 13ms	210
120 MB IDE	215
200 MB SCSI Maxtor/Conner	335
175 MB Conner	249
200 MB SCSI Quantum	428
340 MB WD IDE	485
340 MB Maxtor SCSI	595
1.2 GB Maxtor S/E P0125	1350
1.7 GB Maxtor S/E P1-17	1699
676 MB Maxtor E/S	1068
425 MB IDE QTM 256K	860
425 MB Fujitsu/S	827
520 MB Fujitsu SCSI	879
1200 MB Fujitsu SCSI	1317
2055 MB SCSI	2149
125 MB ESDI	280

MONITORS

15" Mag SVGA (1280x1024) 0.28	$555
14" Mono Monitor	94
14" VGA Mono	100
14" SVGA .28 (1024x768)	246
14" SVGA .39 (1024x768)	215
14" VGA .52 (640x480)	189
Viewsonic 4 .28	290
Viewsonic 5E .28	394
Viewsonic 5+ .25	484
Viewsonic 6 Non .28	324
Viewsonic 6FX 15"	538
17" Viewsonic 7 .28	960
20" Viewsonic 8 .25	1510
Impression Non-In 1024x768 0.28	289
NEC 3FG/4FG	635/745
NEC 5FGX 17"	1395
Sony 1304s	549
Sony 1604s 16"	1025
Samsung 15" .28	485
Samsung 17" .31 (1280x1024)	845
Nanao T660i/550i	2399/1075
Impression 17" .28 1280x1024	865

KEYBOARDS

101 Keyboard/Mini	$22/19
Keytronic 101 Key	33
Fujitsu 101 Key 4700	40
Maxi-Switch 101 Key	30
Chicony Click 101 Hi	30
Small 101 Keyboard	19
OmniKey 101/102	67

MOTHERBOARDS + CPU

486DX-66 MHz/128K/CPU ISA	$665
486-50 MHz/256K/EISA & VESA	675
486-50 MHz/256K/ISA	585
486-33 MHz/256K/EISA	560
486-33 MHz/128K/ISA	430
486DX-50/256K/2 Local Bus	620
486DX2-66/256K/2 Local Bus	720
386-40 MHz/128K AMD	165
386-33 MHz/64K AMD	150
486-33 MHz/128K/Cyrix	235
386SX-33/25/16 CPU	105/98/78
286-20 MHz/CPU	62
286-12 MHz/CPU	55
3486DX-33/66 MHz/Local Bus/No CPU	129
486DX-33 MHz/256K/2 Local Bus	465

INTERFACE CARDS

IDE Controller Card VESA	$75
IDE Controller I/O Card (2S/1P/1G)	15/20
Floppy Controller MFM 1:1	39
2.88 FDC Controller Card	65
AT I/O 2S/1P/1G Card	15
Ultrastor 12F/24K (ESDI)/24F	140/439
Adaptec-1542B (SCSI)	238
DTC 3280 SCSI Card	110
ET4000 VESA Local Bus 32 Bit	125
Genoa 7800 SVGA Local Bus 32 Bit	139
256K VGA 16 Bit	29
512K 1024x768 16 Bit	39
Oak/1MB 1024x768 16 Bit	49
Trident SVGA/1MB 1024x768	59
ATI Wonder VGA VL24/1 MB	129
ProDesigner IIS Sierra 1MB	129
Tseng Lab 1M 1280x1024 (ET4000)	84
Orchid Fahrenheit 1MB S3	145
SpeedStar Hi 24X 1MB	165
ATI Ultra PRO 2 MB VRAM L Bus	425
ATI Ultra Plus w/2 MB	295
ATI Ultra w/1 MB VRAM/Mouse	245

MISC.

Mouse Hi-3 Button/Black	$11/14
Logitech Mouse/Trackball Mouse OEM	60/30
Logitech Bus Mouse OEM	65/40
230W Power Supply	45
Slim Case w/230W	68
Mini-AT Case w/PS	50
Mini-Tower Case w/PS	50
Full Tower Case/250W PS/Two Fans	98
MidTower Case w/PS	78
Sound Blaster Pro Card	175
Sound Card 3000	85
250MB Tape Back-Up Archive	189
16-Bit Ethernet Card NE2000	70
250MB Colorado/120MB	210/175
Sony CD-ROM/Software/CD U31	335
Mitsumi CD-ROM/Software/35ms	295
Windows 3.1 w/System	45
MS DOS 5.0 w/System	45
1MB 70/80ns SIMM	31
4MB 70/80ns SIMM	139
256x9 70/80ns SIMM	11
256x4 70/80ns DIPS	4
80387-40 Cyrix	95/85
80387DX-40/33/25/16/ULSI	85
387SX-25/20/16	75/70/65

MODEMS

2400/9600 Zoltrix Int	$31
Fax Modem (9600/2400) R/S/Ext	59/185
Fax Modem (4800/2400)	35
14400/14400 Fax Modem Int/Ext V.42	190/215
9600/9600 Fax Modem Int V.42.	199
2400 Ext Modem	65

PRINTERS

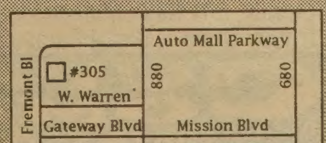
Panasonic KX-P1180	$158
Panasonic KX-P1123	207
PanasonicKX-P1124i	284
Panasonic KX-P1624	364
Panasonic Laser 4410	664
HP IV/Toner	1399

HARD/FLOPPY DRIVE

1.2 MB/1.44 MB Teac	$54/49
1.2 MB/1.44 MB Mitsumi	49/44
1.44 MB Sony	55
1.44 MB Epson	44
2.88 MB Teac	88
1.2/1.44 Teac Dual	129
1.2 MB/1.44 MB Teac Black	55/50

KING STAR COMPUTERS INC. 46560 FREMONT BLVD. #305 FREMONT, CA 94538
ONE YEAR WARRANTY PARTS & LABOR ON SYSTEMS
OPEN Mon-Fri: 8:30-5:30 Sat: 11:00-4:00
TEL: (510) 659-8590 Fax: (510) 659-8644

- Dealer Inquiries Welcome
- Prices Subject To Change W/O Notice
- Gov't PO's Welcome



$AVE 50%

Don't throw away your used Toner Cartridge

Recycle and $ave.

HOW ?

When we pick up your cartridge (a free service) it is first tested, then carefully disassembled. We remove every bit of the old toner and recoat or replace the drum, greatly extending the life of the cartridge. We then lubricate the unit and fill it with a higher quality toner than the factory originally used. Any part of the cartridge that is faulty -- springs, shutters, hoppers, corona cage and wire assembly, magnetic roller brush, alignment pin, doctor blade, non tamper screws --is replaced at no charge. We then reassemble it and test it thoroughly before returning it to you.

TURNAROUND (when do I get it back?)

All units are processed and returned within 24 hours after pickup, directly to your office (again, a free service saving you time)

QUALITY

Improve the quality and output of your Laser Printer. Our Recycling - Remanufacturing process produces prints that are sharper and clearer than prints from the original cartridge. Our higher-rated replacement toner, designed for graphics as well as high resolution text, gives you up to 25% more copies per cartridge.

from **$44.00**

FREE PICKUP AND DELIVERY AVAILABLE, PLEASE CALL FOR DETAILS

ADMIRAL MARKETING

SAN JOSE , CALIFORNIA

PHONE - 408 286 0346 - FAX - 408 286 0324

BY RECYCLING YOUR CARTRIDGE YOU NOT ONLY SAVE MONEY AND GET BETTER TONER, YOU ALSO GET THE SATISFACTION OF KNOWING THAT YOU'RE NOT NEEDLESSLY ADDING TO OUR SHRINKING LANDFILLS WITH YOUR USED CARTRIDGES. OUR RECHARGING TECHNIQUE ALLOWS UP TO 10 RECHARGES PER CARTRIDGE.

DISCOVER THE CUPERTINO COMPUTERS DIFFERENCE!

LARRY WOOD - OWNER

386DX-40C64	$389
486DLC-33C64	489
486DX-33C64	669
486DX-50C64	799
486DX2-66C64	939
486DX-33 VESA LB	729

1 YEAR PARTS, 3 YEAR LABOR WARRANTY ON ALL SYSTEMS

MON-FRI 10:00-6:00
SATURDAY 11:00-4:00

SALE PRICES FOR CASH CUSTOMERS NO CREDIT CARDS

Corporate P/O's Welcome

Prices & availability subject to change w/o notice

STANDARD SYSTEM: Motherboard & CPU, 1 MB RAM, Desktop or Mini-Tower Case, 230 Watt Power Supply, 101 Key Enhanced Keyboard, 2 Hard/2 Floppy Disk 1:1 Controller Card, AMI Bios, 1.2 or 1.44 MB Floppy Drive, 2 Serial/Parallel/Game I/O Ports.

CUPERTINO COMPUTERS INC.

10675 S. DE ANZA BLVD., CUPERTINO, CA 95014
TEL: (408) 255-5997 FAX: (408) 255-7699

CONTRIBUTORS

Lenny Bailes is a teacher and consultant in San Francisco.

Jennifer Robin Cherniss is a free-lance writer living in Berkeley.

Kathleen Creighton is a longtime observer of online systems. She can be reached at *casey@well.sf.ca.us.*

Bill Darden is a Southern California consultant.

The ubiquitous **John C. Dvorak** has been working on yet another book lately, and doing more bizarre interviews.

Jonathan E. writes about world music for our sibling publication *BAM.* He's been working with desktop multimedia since 1988.

Bennett Falk works in the tech support department at Sybase, plays drums in the house band RTFM, and does unexpected things with UNIX.

Rich Grace is a free-lance writer based in Orange County.

Mitsu Hadeishi is the founder of Open Mind, a San Diego-based software company.

Peter John Harrison is a San Franciosco-based communications and connectivity specialist.

Paul Hoffman is an industry analyst who's been writing about microcomputer technology for ten years, and is the author of several books on computer-related topics.

Ed Kahn is a writer and consultant based in the San Fernando Valley.

Mitchell Kapor founded Lotus Development and designed Lotus 1-2-3. He is currently Board Chairman of the Electronic Frontier Foundation, which he cofounded.

Matthew Leeds works at Brøderbund Software and writes about various Mac-related subjects.

Woody Liswood lives in Colorado and writes about a variety of PC-related subjects.

Judy Malloy is an associate editor of *Leonardo* and "Leonardo Electronic News". She has been creating and using artists' software since 1985.

Mike Markowitz works in computer support at a major Southern California university.

David Morgenstern is a BMUG volunteer and works in the library at San Francisco State.

Robert Moskowitz is a business consultant based in Woodland Hills. He writes frequently on productivity, office automation, and technology.

Douglas J. Nakakihara is a confirmed Amiga fan who's also a CPA at Sunkist.

Tony Reveaux is the editor of *Computer Publicity News,* a contributing editor for *Artweek,* and the author of the "MediaScan" column in *Film/Tape World.*

David Simon is an Oakland-based CPA.

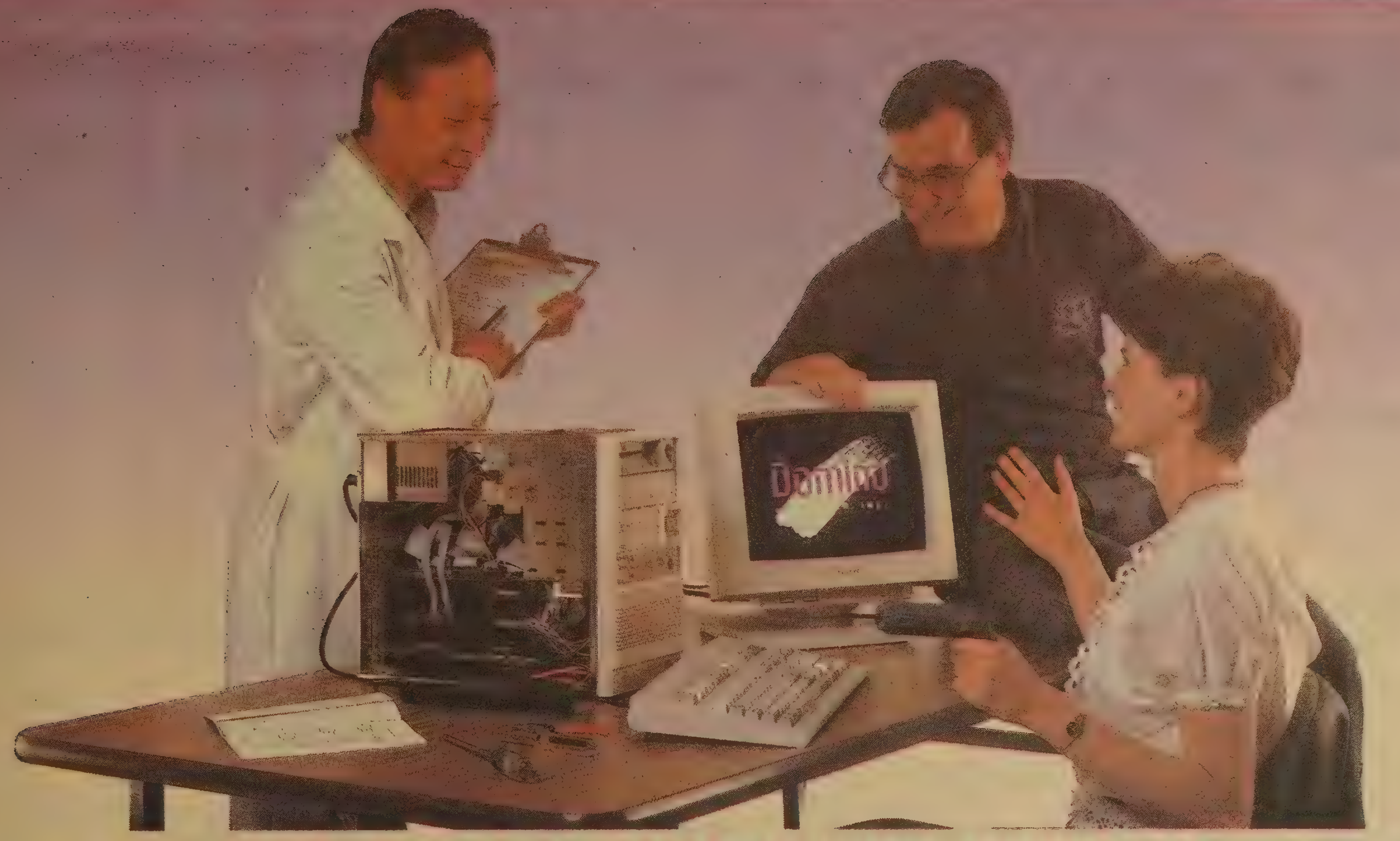
Robert A. Spanner is a Palo Alto attorney specializing in civil and criminal technology litigation and white-collar criminal defense.

Robert David Steele is a former member of the CIA and the US Marine Corps. He founded Open Source Solutions in 1992,

Birrell Walsh works at KQED and writes about interesting hardware and software products.

Jim Warren founded the West Coast Computer Faire and, more recently, chaired the First Conference on Computers, Freedom and Privacy. He is a member of Autodesk's board of directors.

Wayne Yacco lives in Burbank and writes about LANs and other computer-related topics for a variety of publications.



14.4/14.4
FAX DATA MODEM
$175
Limit 5 per store

BUILD YOUR COMPUTER WITH US

No More Fear! Learn About Your Computer
While We Help You Build or Upgrade It Yourself!

IT'S EASY—In a test done by "Dvorak On Computer" anchor Leo Laporte, a 486/50 computer was built by Mr. Laporte in our center in 1 hour. Visit one of our 25 convenient California locations and see what everybody is talking about.

SPECIAL
486DLC/33/64k
$235
Quantity Limited

SPECIAL PROMOTION: Build a 486 System & get a Domino Tool set

SHAREWARE AVAILABLE

PANASONIC Printer Promotion

KX-P2180 (9 pin, 240 CPS, Color Option)	**$160**
KX-P2123 (24 pin, 240 CPS, Color Option)	**$230**
KX-P2624 (24 pin, 300 CPS, wide carriage)	**$360**

(Two of each per store. First come, first served.)

Hot Product! **BitFax/OCR**

Turn your fax into editable text **$59**

SPECIAL! True-Color Turbo SVGA Card

16 million colors, 1280x1024 resolution (1MB)

Best Buy high performance SVGA card **$85**

NEW! SOUND MACHINE

SoundBlaster Clone w/ speakers & joystick **$99**

DO IT YOURSELF SPECIAL

Build a 486DLC/33 MHz/ 64k SVGA Monitor System w/ 1MB, 2 Floppy Drives, 40MB Hard Disk **$848**

Upgrades: 4MB memory/130MB HD **$95/100**

MOTHERBOARDS

SPECIAL! 386SX 16 MHz	$79
386/33 MHz/64k cache	$165
486DLC/33 MHz/ 64k	$235
486/33 MHz/ 64k cache	$475
486DX2/66 MHz/ 128k cache	$748
486/33 MHz/128k cache VESA local bus	$499
486DX2/66 MHz/128k cache VESA local bus	$788

ACCESSORIES

Motorola PT-550 Cellular Portable Phone	$389
1.44MB Floppy Drive	$49
True-Color Turbo SVGA Card (1MB)	$85
Domino Mouse	$13
Super VGA Monitor (1024x768)	$249
Non-interlaced VGA Monitor	$315
SPECIAL! 9600 2400 Fax/Data Modem	$59
NEW! 14.4/14.4 Fax/Data Modem	$175
101 Keyboard	$19
BitFax/OCR Turn fax into editable copy	$59
486/33/80MB Notebook	$1999
Mitsumi CD-ROM w/ 6 titles	$310
Sony Internal CD-ROM w/ software pkgs.	$420
Hard Disks & Much, Much More	$CALL

Prices subject to change w/o notice. Not responsible for typographical errors. 386, 486, SX are trademarks of Intel Corp.

100% FINANCING AVAILABLE

CONCORD
1130D Burnett Ave.
Concord, CA 94520
(510) 682-8934
Cnr of John Glenn & Burnett
OPEN SUNDAY

DALY CITY
7317 Mission Street
Daly City, CA 94014
(415) 994-7581
Near Eastmore & San Pedro
OPEN SUNDAY (By Appt.)

SAN FRANCISCO
3400 Geary Blvd.
San Francisco, CA 94118
(415) 668-9311
Geary & Commonwealth
OPEN SUNDAY

LOS ALTOS
111 Plaza North
Los Altos, CA 94022
(415) 941-7778
Bk of State nr. Wells Fargo
OPEN SUNDAY (By Appt.)

MILPITAS
976 Hanson Court
Milpitas, CA 95035
(408) 946-6991
Milpitas Blvd. & Jacklin
OPEN SUNDAY (By Appt.)

CAMPBELL
486 E. Campbell Ave.Ste 102
Campbell, CA 95008
(408) 374-7477
3 blocks west of Pruneyard
OPEN SUNDAY

BLOSSOM HILL
461 Blossom Hill Rd., Unit H-1
San Jose, CA 95123
(408) 363-1800
Blossom Hill at Snell
OPEN SUNDAY (By Appt.)

SANTA CLARA
2536 Seaboard Ave.
San Jose, CA 95131
(408) 955-9290
Behind Office Depot on Trimble
OPEN SUNDAY

VALLEJO
480 Redwood St., Ste. 41
Vallejo, CA 94590
(707) 644-5055
Redwood exit w. Hy 80
OPEN SUNDAY

SAN RAFAEL
757 Lincoln Ave., #30
San Rafael, CA 94901
(415) 453-8525
Cen. San. Raf. at Hwy 101

SANTA ROSA
1740 Santa Rosa Ave.
Santa Rosa, CA 95404
(707) 523-2055
Nr Santa Rosa & Baker

SAN RAMON
2217 San Ramon Vly Bd, #C,
San Ramon, CA 95404
(510) 820-6022
Inside San Ramon Sq.

SACRAMENTO
3019 Arden Way
Sacramento, CA 95825
(916) 972-0311
Inside Arden Center

MILLBRAE
231 Millbrae Ave., # 101
Millbrae, CA 94030
(415) 259-8080
Right nxt to Shell Station

BERKELEY
1552 Beach St., Ste. B
Emeryville, CA 94608
(510) 653-6286
Conr of Park & Halleck

HAYWARD
26222 Industrial Blvd.
Hayward, CA 94545
(510) 732-0377
Industrial and Hwy. 92

SUNNYVALE
1214 Apollo Wy, #404-2
Sunnyvale, CA 94086
(408) 749-8114
Lawrence nr Wells Fargo

Domino

COMPUTER SELF SERVICE CENTERS

• BEST MEMORY PRICES • HIGHER QUALITY
• SAME DAY SHIPPING • FREE REPLACEMENT WARRANTY

SIMM'S

1x9-10 3 Chip/9 Chip	$28/30
1x9-80 3/9 Chip	30/32
1x9-70 3/9 Chip	30/32
1x9-60 3/9 Chip	32/34
1x8-80 8 Chip	29
1x8-70	30
1x8-60	32
4x9-60	138
4x9-70	129
4x9-80	125
4x8-70 8 Chip	114
4x8-80 8 Chip	112
256x9-80	10
256x9-70	12

DRAM'S

1x1-80	$\$3^{99}$
1x1-70	3^{99}
1x1-60	4^{99}
256x4-80	4^{99}
256x4-70	4^{99}
256x4-60	4^{99}
256x1-15-12-10	1^{50}
256-70	1^{75}
4464-80	1^{65}
4464-10	1^{59}

CPU CHIPS

80386DX-16/20/25/33	$39/49/69/79
80486DX2-50/66	410/549
80486DX-25/33	260/319
80486SX20/25	130/195
80386DX40	79
386DX40 w/Socket	75
80286-8/10 (PLCC)	8/10
80286-12/16 (PLCC)	6/10
V-30-10 V-30/20-10	CALL

SPECIAL MATH CO-PROC

INTEL 80387DX-20	$30

MATH CO-PROCESSOR

INTEL	
8087-5 MHz	$29
8087-2 8 MHz	59
8087-1 10 MHz	89
80287-6 6 MHz	20
80287-8 8 MHz	29
80287XL 12 MHz (Laptop)	69
80287-10 10 MHz	35
80C287-12 MHz	35
80387SX-16,20,25	89
80387DX-16,20,25,33	79
80387DX-20 (Tube)	30
WEITEK	
3167-20 20 MHz (Tube)	$29
3167-25 25 MHz	145
3167-33 33 MHz	325
4167-25 MHz	350
4167-33 MHz	585
CYRIX	
83D87-40 40 MHz	$85
83D87-20 20 MHz	69
83D87-25 25 MHz	69
83D87-33 33 MHz	75
83SX87-16 16 MHz	69
83SX87-25 25 MHz	69
IIT	
8C87-8	$39
8C287-10	39
8C287-12	49
287-20	49
8C387-20	59
8C387-25	59
8C387-33	69
8C387DX-40	79
ULSI	
US 83C87 16/20 MHz SX	$59
US 83C87 20/25 MHz SX	69
US 83C87 25/33 MHz	69
US 83C87 40 MHz	79

EPROMS

2764-200ns	$\$2^{75}$
27C64-200ns	3^{50}
27128-200ns	3^{00}
27128-150ns	5^{00}
27256-200ns	3^{50}
27C256-200ns	3^{75}
27C512-200ns	6^{00}
27C020-150ns	13^{00}

1x4 4x1 STATIC

514402-80 (1x4) STT,ZIPP	$18
514400-80 (1x4) ZIPP	15
514400-80 (1x4) DIPP	16
514400-80 (1x4) SOJ	14
514100-80 (4x1) SOJ	14

COMPAQ MEMORY

DeskPro 386/20e, 20, 35e, 25 286e	
1 MB Module	$175
4 MB Module	165
DeskPro 386/20e, 25e	
1-9 MB Exp Brd	140
4-12 MB Exp Brd	269
DeskPro 386s-16	
1 MB Module	89
4 MB Module	179
1-9 MB Exp Brd	159
4-12 MB Exp Brd	240
DeskPro 286N, 386N, 386SX/20	
2 MB Module	75
4 MB Module	175
DeskPro 386N, 386SX/20	
2 MB Module	118
DeskPro 286N, 386N	
0-4 MB Exp Board	175
DeskPro 386/33SL, 486/25, 486/33L System Pro	
2 MB Module	139
8 MB Module	239
32 MB Module	1700
DeskPro 386/16	
1 MB Kit	89
1 MB Exp Brd	229
2 MB Exp Brd	329
4 MB Kit.	CALL
4 MB Exp Brd	425
8 MB Exp Brd	725
Portable 386	
1 MB Kit.	189
4 MB Exp Brd	319
4 MB Exp Brd	322
Portable LTE (8086)	
512K Module	CALL
Portable LTE/286	
1 MB Module	89
2 MB Module	149
4 MB Module	425
Portable SLT/286	
1 MB Module	169
4 MB Module	349
Portable SLT/386	
1 MB Module	169
2 MB Module	189
4 MB Module	310
Portable III	
512K Kit.	55
2 MB Kit.	139

IBM PS/2 MEMORY

Mdl 30/386, Exp Brd	
512K Kit	$54
2 MB Kit	89
Mdl 70-061; -121; 55SX; 65SX: Exp Brd	
1 MB Module	69
Mdls 70-061: E61: 121: 50Z, 55LS, 55SX: 65SX: P70:	
2 MB Module	85
Mdls 70-A21: A61, B21, B61	
2 MB Module	99
Mdls 55SX: 65SX: 55LS, 65LS	
4 MB Module	159
Mdls 80-111; 121, 311, 321	
2 MB Card	99
Mdls 80-A21; A31	
4 MB Card	215
Mdls 80-A21: A31	
4 MB Card	215
Mdls 90; 95	
2 MB Module	159
4 MB Module	259
Mdls 50 & 60	
2-8 MB Exp Brd.	275
Mdls 70 & 80	
2-8 MB Exp Brd	325
2-14 MB Exp Brd	450
4-16 MB Exp Brd	475
Adapter	
2 MB Module	CALL
PS/1 Home System	
512K Upgrade	CALL
2 MB Upgrade	CALL

TOSHIBA PORTABLE MEMORY

T1200XE	2 MB Card	$89
T1600	2 MB Card	99
T3100SX	2 MB Card	85
	4 MB Card	169
T3100e	512K Card	CALL
	2 MB Card	85
T3200SX	2 MB Card	89
	4 MB Card	CALL
T3200	3 MB Card	175
T1000SE; XE	1 MB Card	89
T5100	2 MB Card	99
T5200: 8500	2 MB Card	99

STATIC ZIPPS

1x4 70ns DIPP	$16.00
256x4 10/80/70	$10.50
Video Zipps	

CACHE MEMORY

32x8-25	$6.50	8x8-20	$4.75
32x8-20	7.50	8x8-25	4.25
32x8-15	9.00	8x8-15	4.99
32x8-12	CALL	16x4-25	7.25
64x4-25	8.50	16x4-20	4.75
64x4-20	9.00	16x4-15	5.25
64x4-15	12.00	128x8-25	32.50
64x1-20	6.75	128x8-20	CALL
64x1-15	7.75	128x8-15	CALL

72 Pin SIMMS

2 MB 604-80ns	$69
4MB 1x36-80ns	129
8MB 2x36-80ns	245
16MB 4x36-70ns	525

MOTHERBOARDS

486DX-50 w/256K Cache W/CPU	$575
486DX-33 w/256K Cache W/CPU	440
486DX-33 w/128K Cache W/O CPU	135
386DX-40 w/64K Cache W/CPU	169
386DX-33 w/64K Cache W/CPU	159
386SX-33 W/CPU	119
386SX-25 W/CPU	99
386SX-16/20 W/CPU	75

HARD DRIVES

40 MB Conner IDE	$139
42 MB Seagate IDE	139
80 MB W. Digital IDE	219
120 MB Conner IDE	235
170 MB Conner IDE	245
130 MB Maxtor IDE	249
213 MB Maxtor IDE	345
210 MB W. Digital IDE	339
520 MB Fujitsu IDE	925

FLOPPY DRIVES

1.2 MB Teac 5.25"	$55
1.2 MB Samsung 5.25"	49
1.44 MB Teac 3.5"	49

ADD-ON CARDS

IDE 2FD/2HD	$12
IDE w/I/O	19
IDE 8-Bit Floppy Cont	15
IDE 8-Bit Hard Cont	19
1542BK Adaptec SCSI	259
DTC SCSI w/FD & w/HD	145
DTC ESDI w/FD & HD	160
DTC 8-Bit SCSI w/FD/HD	105
IDE Caching Exp to 4MB 0K	180

VIDEO CARDS

Trident w/256K VGA	$30
Trident w/512K SVGA	39
Trident w/1 MB SVGA	60
Oak w/1 MB SVGA	49
Tseng Lab ET4000 w/1 MB SVGA	99
Orchid Pro IIS w/1 MB	125
Orchid Fahrenheit w/1 MB	245
Diamond Stealth w/1 MB	225

MONITORS

14" VGA .41mm 640x480	$210
14" SVGA .28mm 1024x768	259
14" SVGA .28mm Samsung	259
14" NI SVGA .28mm 1024x768	299
Viewsonic 4E/5E/6E/7	295/399/345/1099
NEC 3FG/4FG/5FG/6FG	659/749/1389/2350

MEMORY EXPANSION BOARDS

Rampat for AT	$95
Rampat Plus XT/AT exp to 16MB	125
Simmply Ram for PS/2-16 mod. 50,50Z,60,65 or 16-Bit MCA	149
Simmply Ram for PS/2-32 mod. 70,80,90 or any 32-Bit MCA	169

CASES

Baby AT w/230W PS	$63
Mini Tower w/230W PS	64
Mid Tower w/230W PS	79
Full Tower w/230W PS	99

FAX/MODEM

2400bps Internal w/MNP5	$35
96/24bps Internal w/MNP5 w/Window	55
9600bps Internal w/MNP5	225
96/96bps Internal Fax/Modem V.32&V.42 Bis	199
96/144bps Int Fax/Modem V.32 & V.42 Bis 57,600 bps Throughput	199
External/Pocket Fax Modem	CALL

ACCESSORIES

Serial Mouse 3-button	$15
VLB Controller Card	165
Cooling Fan w/Heat Sink	17
Sound Blaster Pro w/MIDI	189
Printer Cable 6' Paral	4
Printer Cable 10' Paral	6
Switch Box (A/B) for printer	9
Switch Box (A/B/C/D) for printer	22
Diskettes HD 5.25/3.5	38¢/59¢ 500+

C.B.
Memory & Computers
1319 Jacklin Rd. • Milpitas, CA 95035
(Jacklin Exit Off 680)
TEL: (408) 946-5174 or 946-5175
Fax: (408) 946-5376

Bay Area's Computer Magazine
MICROTIMES

BPA

EDITOR-IN-CHIEF
Dennis Erokan
PUBLISHER
Chuck Stanley
EDITORIAL 510-934-3700
EDITOR Mary Eisenhart
ASSISTANT EDITOR Michael Robin
NEWS EDITOR Paul Hoffman
ART DIRECTOR Lisa Lusk
SENIOR DESIGNER Monika Lukenbill Loar
CONTRIBUTING EDITORS Lenny Bailes, John Perry Barlow, John C. Dvorak, Bennett Falk, Mitsu Hadeishi, Ed Kahn, Matthew Leeds, Mike Markowitz, Brock Meeks, David Morgenstern, Douglas J. Nakakihara, Tony Reveaux, Birrell Walsh, Jim Warren, Wayne A. Yacco
CONTRIBUTING WRITERS Mikael Blaisdell, Anna Couey, Kathleen Creighton, Adam Gaffin, Rich Grace, Peter John Harrison, Fred Lieberman, Woody Liswood, Robert Moskowitz
CONTRIBUTING PHOTOGRAPHERS Jay Blakesberg, Michael Jay, Susana Millman, Ann Summa, Paul Winternitz
ADVERTISING 510-934-3700
DIVISION BUSINESS MANAGER Amy Barrett
SALES MANAGER Cynthia Lapporte (Southern California)
SENIOR ACCOUNT DIRECTOR Barry Green (Northern California)
NATIONAL ACCOUNT DIRECTORS Jane Shepherd (Southern California), Greg Sage (Northern California)
ACCOUNT EXECUTIVES Marty Gillow, Tracy Longo, Ken Marson, Chloe Vezo, Debra Siegel
CLASSIFIED & SUBSCRIPTION MANAGER
Jennifer Kosta (Northern California)
ADVERTISING SERVICES ASSISTANTS
Carolyn Guerrero (Northern California)
Brooke Jonassen (Southern California)
PRODUCTION
GROUP PRODUCTION DIRECTOR Richard Lesovoy
GROUP PRODUCTION MANAGER Mary Beth DeSantis
PRODUCTION ASSISTANT Wendy Sloneker
TRAFFIC ASSISTANT Matt Matuska
ART STAFF Jennifer Bagwell, Donna Bogener, Rick Colby, Hilary Dunn, Gigi Green, Robyn Hartt, Stephen Noetzel, Diane Wallace
CAMERA OPERATOR John Moorehead
PROOFREADER John Downen
TYPESETTING The Typesetting Shop, Inc.
ADMINISTRATION
CONTROLLER Patricia Buck
SENIOR ACCOUNTANT Linda May
ACCOUNTING Joaquin Arellano, Kim Carrington, Vickie Liu, Brian Murray, Bonnie Peterson
CREDIT MANAGER Doug Morgan
HUMAN RESOURCES DIRECTOR Erica Stein-Oakley
L. A. OFFICE MANAGER Deborah Daiken
ADMINISTRATIVE ASSISTANTS Christine Garcia, Monica Murdock
L. A. ADMINISTRATIVE ASSISTANT Jane Sullivan
OFFICE CLERK Leta Jesch
DISTRIBUTION 510-934-3700
DISTRIBUTION MANAGER John Erokan
Assistant Manager/LA Art Holland
DISTRIBUTION ASSISTANT Tami Martin
DISTRIBUTION CLERK Virgil Cecilio
FIELD COORDINATOR Roe Eyth, Frank Grygus
DISTRIBUTION Dennis Anderson, John Clefstad, Roe Eyth, Frank Grygus, Don Karr, Juan Lau, Jac Michanovic, Robbie Myers, Kelly Orr, Joseph Rafalo, Reliable Circulation, John Dimas Rezendes, SPS, Wilfredo Villarroel
FOUNDERS Dennis Erokan, Don Hamilton, Pat Hamilton

This Vol. 10 No. 3 March 8, 1993, Whole No. 106 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 3470 Buskirk Ave., Pleasant Hill, CA 94523. Phone Advertising Office (510) 934-3700. Los Angeles Office, 6767 Forest Lawn Drive, Suite 110, Los Angeles, CA 90068. Phone (213) 851-8600. San Jose Office, 36 Harold Ave., Suite 2, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 801 East Katella Ave., Suite #210, Anaheim, CA 92805. Phone (714) 939-2809.

MicroTimes™ is © 1993 by BAM Publications, Inc.
Subscription rates: 13 issues, U.S.: 3rd Class $32 (Allow 3 to 4 weeks for delivery), 1st Class $60 Allow 1 to 2 weeks for delivery). MEXICO & CANADA: Surface Mail $50 (Allow 4 weeks for delivery). Air Mail $70 (Allow 1 week for delivery). OVERSEAS: Surface Mail $50 (Allow 6-10 weeks for delivery), Air Mail $165 (Allow 1 week for delivery). To receive sample issues, please send $4 ($6 for overseas) to cover postage costs. Back issues are $6 each.
All rights reserved. Reproduction in whole or in part without permission of Publisher is strictly prohibited. The staff and management of MicroTimes do not advocate or encourage the use of any product or service advertised herein for illegal purposes.

IN 486'S & NOTEBOOKS

THERE IS A NEW LEADER
OFFERING PC BUYERS
WITH VALUE,
SERVICE,
& QUALITY.

1-2-3 WARRANTY

WARRANTY: 1-YEAR ON PARTS, 2-YEAR ON MAINBOARD, 3-YEAR ON LABOR.

30-DAY MONEYBACK

WE GUARANTEE YOUR RISK-FREE PURCHASE BY OUR 30-DAY MONEYBACK POLICY.

LIFETIME TOLL-FREE

OUR CUSTOMERS HAVE UNLIMITED ACCESS TO OUR TOLL-FREE TECHNICAL SUPPORT.

EDUCATIONAL DISC.

DISCOUNT PROGRAMS ARE AVAILABLE FOR QUALIFIED INSTITUTIONS

PO'S ACCEPTED

PO'S FROM QUALIFIED CORPORATIONS ARE WELCOME, FAST CREDIT APPROVAL.

NETWORK READY

SANTRON'S SYSTEMS ARE READY FOR YOUR JUST-PLUG-IN NETWORK OPERATION

SANTRON

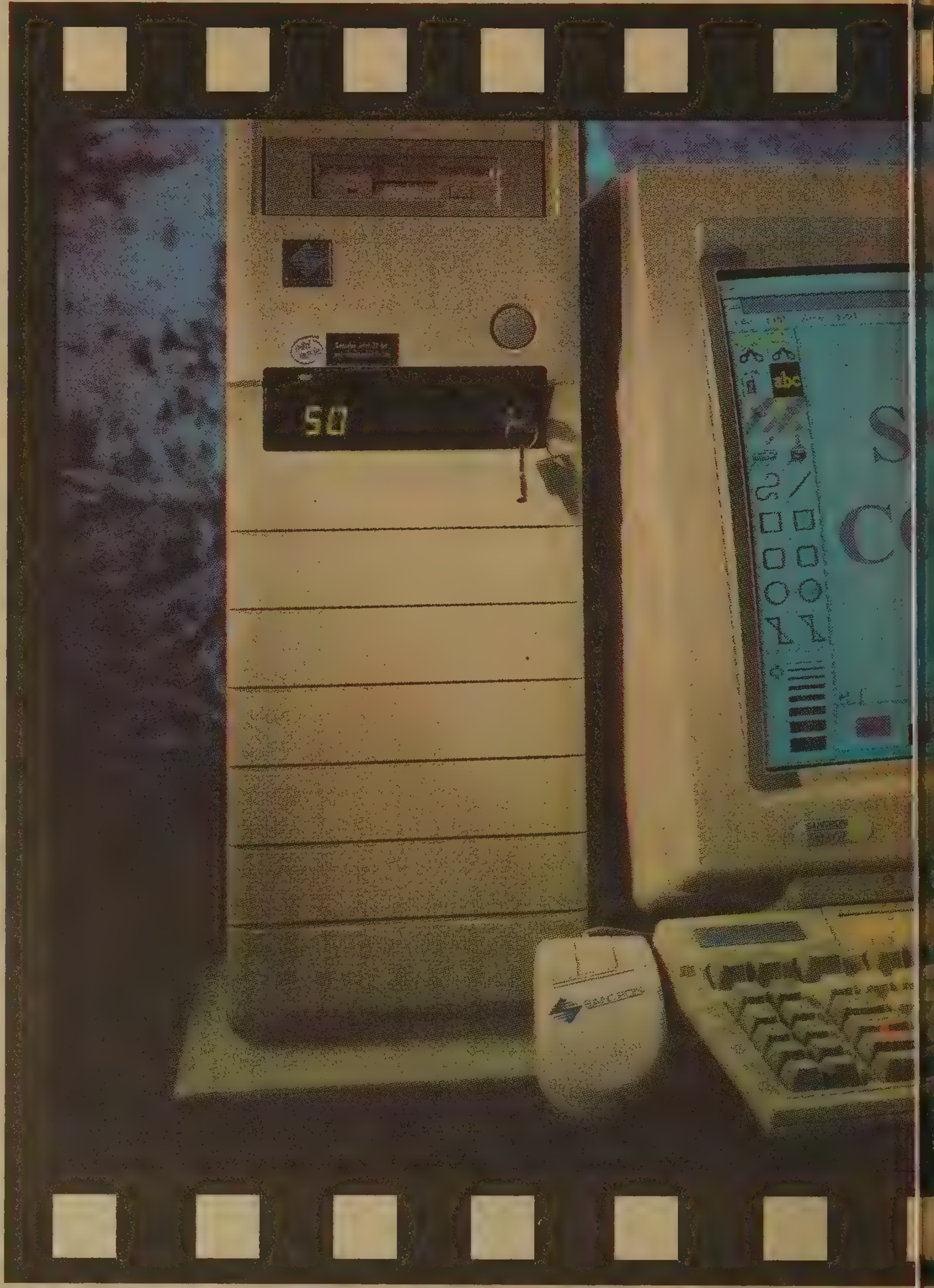
1-800-938-7888

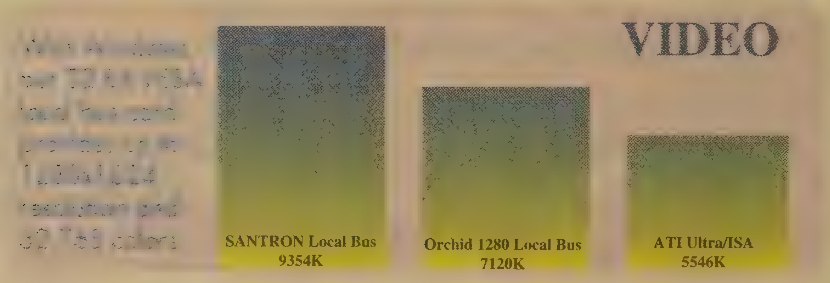
SANTRON

VESA

Breakthrough of Today's 486 PC's Technology

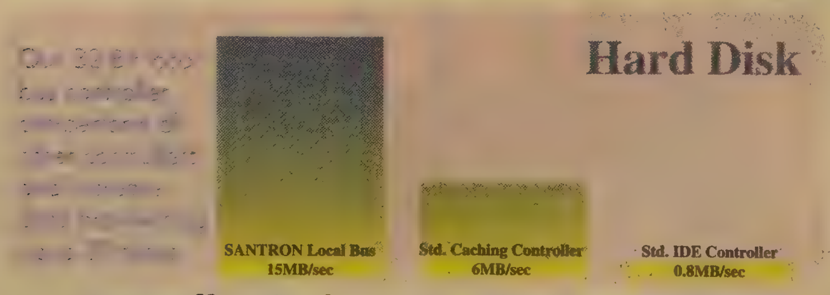
Today, we are turning our competitors on their ears - Santron's new 32-Bit Local Bus with VESA (Video Electronics Standards Association) Architecture- today's solution for competibility.





Overall Windows Performance Test
WinMarks

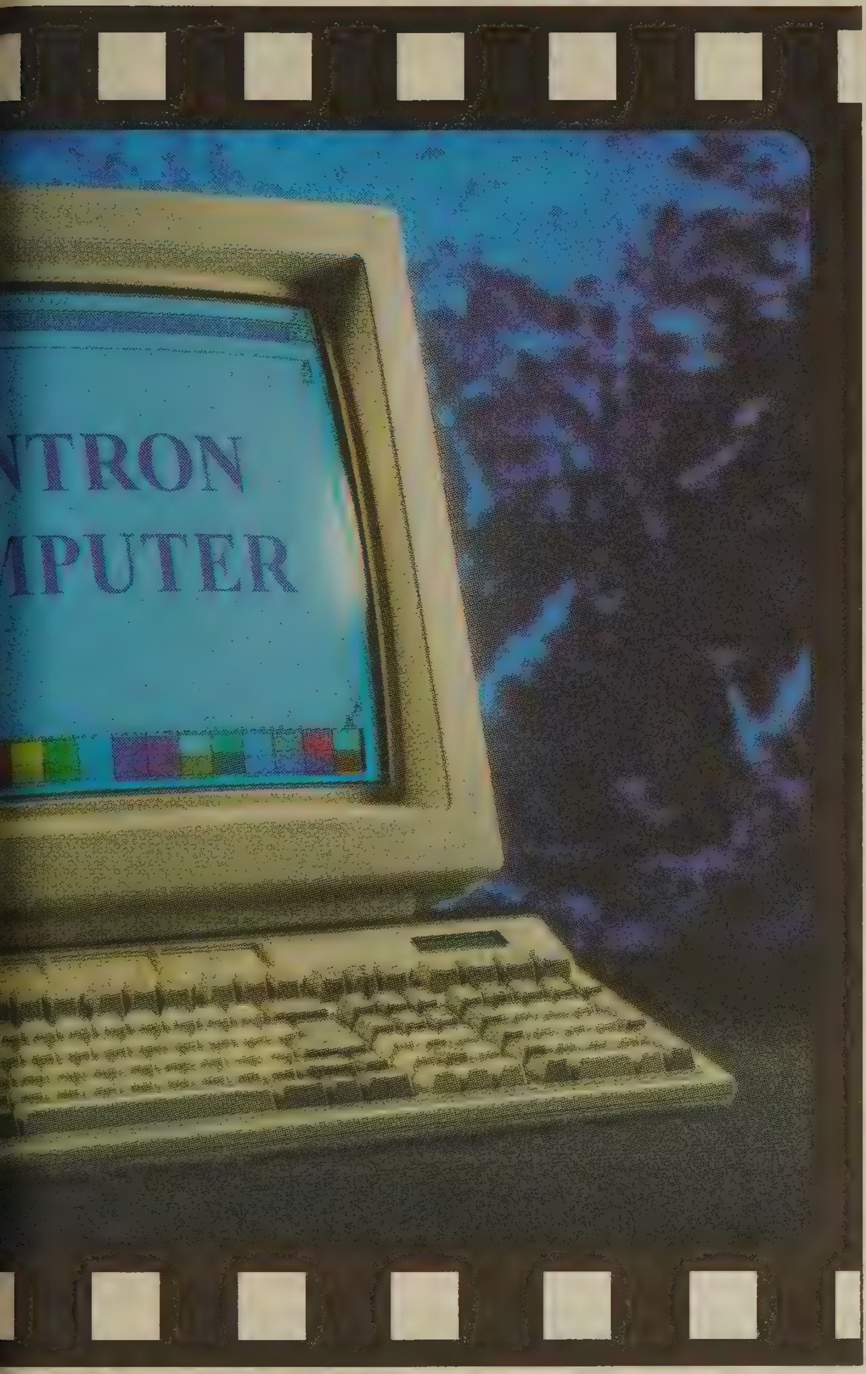
At an affordable price, you get the power and speed which exceeds EISA standards. Your graphics are processed at a speed up to 50 times faster than the standard SVGA. How is this possible? Most of the computers only have added graphics accelerators, however, their real-time speeds are still limited by their 8MHz 16-Bit AT bus. Santron's Local Bus processes video bypassing the bus bottleneck. This enables the 32-Bit graphics accelerator to connect directly to the 486 CPU - a real 32-Bit performance. What's more, Santron's Local Bus Systems have slots for a 32-Bit Local Bus hard disk controller for lightening fast data transfer rates of up to 100% faster - for a total 32-Bit video / hard disk solution. The built-in SPEED MASTER CONTROLLER will remove redundent workload off the CPU allowing your system to work more efficiently. What an unsurpassed performance!



Overall Windows Performance Test
Core-Test

* The Intel Inside Logo is a registered trademark of Intel Corporation.

LOCAL BUS



SANTRON *LOCAL BUS*

Enjoy your graphics at a speed up to 50 times faster than ever

- *Intel486® Microprocessor with Built-in Math-CoProcessor*
- *AMI BIOS with System Setup and Hard Disk Utilities*
- *Full Tower with Digital Display & 250W Power Supply*
- *256K 20ns Cache Memory & 4MB 70ns RAM*
- *IDE Controller Card with 2 Serial/1 Parallel/1 Game Ports*
- *TEAC 1.2MB and TEAC 1.44MB Floppy Drives*
- *120MB 15MS Hard Drive with 64K Cache Memory*
- *32-Bit ET-4000 1280 SVGA Card (1MB; 32,768 Colors)*
- *Super VGA Monitor (0.28mm, 1024x768 Non-Interlaced)*
- *Focus-9000 129-Key Programmable Keyboard*
- *Free Hi-Resolution 3-Button Mouse*
- *Free Microsoft DOS 5.0 and Microsoft Windows 3.1*

486DX-33 LOCAL BUS	**$1725**
486DX-50 LOCAL BUS	**$1945**
486DX2-50 LOCAL BUS	**$1795**
486DX2-66 LOCAL BUS	**$2095**

UPGRADES & OPTIONS

DISPLAY UPGRADE

32Bit S3 Local Bus Video Card	$145
14" 1024NI to 15" 1280NI	$145

STORAGE UPGRADE

From 130MB to 210MB	$150
From 210MB to 340MB	$395
32Bit Local Bus SCSI/IDE	$245

COMMUNICATION/MEDIA

Int. 9600Fax/2400Modem	$85
Multi-Media Kit	$525

OTHER UPGRADES

Virus Immunized Card	$95
Memory Upgrade	$45/MB
Install 2nd Power Cooling Fan	$25

GOVERNMENT ★ FORTUNE 500
CALL
VIP
800-938-7111
The Definite Partner
for Today's
Decision Maker
DEALERS ★ EDUCATIONAL

OF COURSE, SANTRON!

SANTRON

SAN MATEO

1185 Chess Dr., Foster City, CA
Hours: Mon.-Fri. 8:00-6:00 p.m.
Fax: (415) 571-6079
1-800-938-7888

SANTA CLARA/SAN JOSE

3472 El Camino Real, Santa Clara, CA
Hours: Mon.-Fri. 9:00-6:00 p.m.
Fax: (408) 261-0639
1-800-675-5465

SAN FRANCISCO

3210-3212 Geary Blvd, San Francisco, CA
Hours: Mon.-Sat. 9:00-6:00 p.m
Fax: (415) 750-0649
1-800-748-6269

SANTRON 486 PC's

- Intel486® Microprocessor
- Built-in Math-CoProcessor (DX & DX2)
- AMI BIOS with Setup & Hard Disk Utilities
- Tower Case with Digital Display
- 4MB 70ns RAM & 64K Cache Memory
- TEAC 1.2MB & 1.44MB Floppy Drives
- 120MB 15MS Hard Disk with 64K Cache
- 2H/2F IDE Controller
- 2 Serial/1 Parallel/1 Game Ports
- Super VGA Card With 1MB RAM
- 14" Non-Interlaced Super VGA Monitor (HITACHI Tube, 0.28mm, 1024x768)
- 101-Key Enhanced Style Keyboard
- Free Hi-Res. 3-Button Mouse
- Free Microsoft DOS 5.0
- Free Microsoft Windows 3.1

UPGRADES & OPTIONS

DISPLAY CARDS/MONITORS

Diamond Speedstar 24X	$125
Orchid Fahrenheit/Diamond Stealth	$185
ATI Graphic Ultra 1MB VRAM	$245
From 14" Monitor to 15" 1280NI	$145

Ask for *ViewSonic,* SONY, **MAG**, *NEC* and many more...

KEYBOARDS

From 101 to 129 Programable	$55

STORAGE DEVICES

From 120MB to 210MB	$150
From 210MB to 340MB	$395
COLORADO 120MB Tape Backup	$225
COLORADO 250MB Tape Backup	$285

Santron Multi-Media "Super Fun"

$525

SOUND BLASTER

SANTRON 486'S

SANTRON
COMPUTER

486DX-33	JUST $1545
486DX2-66	$1975
486DX-50	$1725
486SX-25	$1325

Multi-Media

Multi-Media turns your Santron Computer into a multi-dimensional audio-visual device. You can enjoy powerful presentations for entertainment and education with sight and sound effects.

√ PANASONIC CR-521A 660MB CD ROM

Multi-Media & Windows Certified

- √ Sound Blaster Pro Audio Card
- √ Multimedia Extension 1.0
- √ Microsoft Reference Library
- √ Sherlock Holmes
- √ Microsoft Bookshelf for Windows
- √ Prosonus and Creative Sounds
- √ Entertainment and Education Software Available

Add full multi-media capability to your Santron PC! For only $525, we'll install our multi-media package including listed software titles for your SUPER FUN.

WHY SACRIFICE QUALITY FOR PRICE?

All Santron systems must past our 72-hour RARITON dynamic test - today's most advanced and rigid quality control procedure.
*With our 1-year on-site service, 1-2-3 warranty, and 30-day return policy, your purchase can never go wrong.**
The best value prevails.
Santron - a smart choice.

ORDERING INFORMATION:

Shipping and handling are additional. C.O.D. add $10 handling charge. Call for special UPS Red/Blue terms. Insurance for APO's and FPO's is additional. Products labeled FREE on advertising are not covered by warranty. * Notebooks are covered by 1-year warranty. Notebooks, monitors, printers, and other peripherals are not covered by on-site service. All returns require RMA# issued by Santron's Customer Service Department (415-571-5193) and must be shipped in the original condition prepaid and insured. Incomplete, or unauthorized returns are non-refundable or subject to restocking charge. Returns of products not listed in standard configured systems are subject to a 20% restocking charge. Refunds will be issueded within 14 days less deductions on freight, and charges related to the payment. All prices and specifications are subject to change without notice.

SANTRON *Ultimate* NOTEBOOK

- *Intel 486® Microprocessor*
- *Weight 6.6lbs; Dimensions 11" x 8.5" x 2.3"*
- *32K Cache Memory*
- *4MB RAM Upgradeable to 8 or 32MB*
- *80MB 15ms Hard Drive*
- *1.44 MB Int. Floppy Drive*
- *Built-in Trackball*
- *Built-in Fax/Modem (optional)*
- *3.5 Hour Battery*
- *10" 64 Grayscale LCD Screen*
- *Serial, Parallel, VGA, Scanner Ports*
- *Free Microsoft DOS 5.0*
- *Free Microsoft Windows 3.1*

UPGRADE OPTIONS

4MB to 8MB	$225
80MB HD to 120MB HD	$175
120MB HD to 210MB HD	$295
Internal Fax / Modem	$125
Ethernet Coaxial Adapter	$175
Docking Station	$295

486SX-25...$2195

486DX-33...$2395

EVEN LOWER

intel inside

* The Intel Inside Logo is a registered trademark of Intel Corporation.

SAN MATEO

1185 Chess Dr., Foster City, CA
Hours: Mon.-Fri. 8:00-6:00 p.m.
Fax: (415) 571-6079
1-800-938-7888

SANTA CLARA/SAN JOSE

3472 El Camino Real, Santa Clara, CA
Hours: Mon.-Fri. 9:00-6:00 p.m.
Fax: (408) 970-0359
1-800-675-5465

SAN FRANCISCO

3210-3212 Geary Blvd., San Francisco, CA
Hours: Mon.-Sat. 9:00-6:00 p.m
Fax: (415) 681-2535
1-800-748-6269

intel inside®

Quality You Can Count On!!!

BOLD

DATA TECHNOLOGY, INC.
Computer Systems
Components
Peripherals

BDT-486SX-33 MHz

- BDT Basic Package
- BDT 486SX-33 Motherboard
- BDT 486SX-33 CPU on board
- AMI Bois
- Baby AT DeskTop or Mini Tower Case With 230W Power Supply

$1079

BDT-486SX-25Mhz

- BDT Basic Package
- BDT 486SX-25 MotherBoard
- Intel 486DX-25 CPU on Board
- AMI Bois
- Baby AT DeskTop or Mini Tower Case With 230W Power Supply

$1029

BDT-486DX-33Mhz

- BDT Basic Package
- BDT 486DX-33 MotherBoard
- Intel 486DX-33 CPU on Board
- 64K Write Back Cache
- AMI Bois
- Mini or Medium Tower Case With 230W Power Supply

$1239

BDT-486DX-50Mhz

- BDT Basic Package
- BDT 486DX-50 MotherBoard
- Inte CPU on Board
- 256K Write Back Cache
- AMI Bois
- Tower Case With 250W Power Supply

$1359

All Basic Systems Include:

- 4MB of 70ns RAM
- 1.2 and 1.44 Floppy Disk Drive
- 80MB IDE Hard Disk Drive
- 2 FDD and 2 HDD 1:1 IDE Controller
- 2 Serial, 1 Parallel and 1 Game Port
- VGA Card with 512K on Board
- 14" VGA Monitor
- 101 Key Enhanced KeyBoard

Upgrade Options:

– 14" Super VGA Monitor with 1MB SVGA Card	+$90
– 14" Super VGA Monitor with Window Accelerator Card	+$175
– 120MB IDE Hard Disk Drive	+$60
– 200MB IDE Hard Disk Drive	+$240

BOLD DATA TECHNOLOGY

The Intel Logo is a Registered Trademark of Intel Corporation

920 Auburn Ct.
Fremont, CA 94538
Tel: (510) 490-8296
Fax: (510) 490-9428

13200 Brooks Dr. Suite H
Baldwin Park, CA 91706
Tel: (818) 338-2878
Fax: (818) 338-1178

Letters

PARADOX: ANOTHER VIEW

I've used Paradox for over four years, so I was confused when I read Cynthia Johnston's account of Julie Bowers' problems with Paradox. Frankly I thought Ms. Johnston took some cheap shots at Paradox to FileMaker Pro's advantage.

One charge levelled at Paradox seemed particularly cheap. Writing that "...the program accepted duplicate postings..." doesn't acknowledge the indisputable fact that Paradox can be set up, quite simply, to not allow duplicate values in any field or fields. Later, when describing problems with reporting, Ms. Johnston quotes a "Paradox programmer" as saying, "If you'd told me this two months ago, I could have done it." This charge was also echoed in the pull quote on the first page of the article. As most experienced Paradox users (let alone programmers) know, Paradox has powerful and flexible reporting capabilities. Add-ons exist that enhance the reporting capabilities.

As most experienced Paradox users (let alone programmers) know, Paradox has powerful and flexible reporting capabilities. Add-ons exist that enhance the reporting capabilities.

Ms. Bowers is obviously familar with the Macintosh platform and FileMaker Pro. Were she as familar with Paradox, she might not have had to switch to a flat file database in mid-project.

Dave Yuhas
San Francisco, CA

The point of the article in question was less to criticize Paradox (about which we've published enthusiastic articles in the past and which will be reviewed at greater length next month) than to highlight the perhaps-unexpected capabilities of FileMaker.

We do not believe that there is One True Path to anything in this world of computers and software, and don't dispute Mr. Yuhas's contention that under the proper circumstances and with appropriate programming resources, Paradox could have been made to perform the necessary tasks in a satisfactory way. The point here, as with all case history stories, is to point out what tools did in fact work in a real situation, and why they worked. In this particular case, cross-platform capability (Mac and Windows) and ease of use were unusually critical factors.—ME

HELP!

I am writing to you with the hope that you will publish this letter, which is a request for a computer donation.

I am the program director of a nonprofit agency. Our residential facility, in the heart of East Oakland, cares for a total of twenty-five troubled adolescent females. These girls have been abused, abandoned, and neglected, and are not able to be with their families. The emotional baggage they bear necessitates their requirement for group home care.

These girls, like others their age, have their own hopes and dreams in the midst of their despair. They often ask about the possibility of the home having a computer so that they can practice what they learn in school, as well as develop skills for the job market. They will be at a distinct disadvantage when, and if, they reach the adult job market.

Also, our own office is constantly struggling to keep up with chaotic conditions which impinge upon us from the various systems we must interact with. A computer would very much help our work, which is to best assist the girls we treat.

Thank you very much for your attention and your consideration.

Bert Parlee
Kairos Unlimited Inc.
Oakland

If you can help Mr. Parlee in his quest for a computer, please call him at (510)638-3385.

ACCESS TO PUBLIC RECORDS

Thank you for Jim Warren's writing about electronic availability of government data.

His 11/9/92 article did not explicitly mention it, so I wanted you to know about Government Code 6252[d] which provides access "regardless of physical form." Those jurisdictions may still be holding back electronic copies of their documents, but the law is clearly on our side on this one.

"Reporter's Handbook on Media Law," published by the California Newspaper Publishers Association, summarizes and cites reference documents on these issues.

Friederich Koenig
via fax

MICROTIMES AND THE FUTURE

Thank you very much for the recent articles/interviews with some of the top names in computing, the most recent being the coverage of nanotechnology [Issue #101].

I believe it is important to keep an eye on what the future may bring for a better understanding and use of today's technologies. Your magazine recently seems to be presenting a look in the direction of the future with its various interviews and articles. This is an important part of today's computing. The industry changes fast and offers a lot of options, some of which may not be the path one may want to go in, even though touted as the "new" thing.

With your coverage, I feel more informed and better able to make an educated decision. Thank you for that.

Mike Rubio
Los Angeles

NEWS & VIEWS

INDUSTRY INSIGHT

Microsoft: Yet Another Lawsuit; Good News/Bad News For Windows NT STAC Sues Microsoft For Patent Infringement

BY PAUL HOFFMAN

Among the badly kept secrets of the microcomputer industry, the features of upcoming operating systems are a common subject of discussion. It's already widely reported, for instance, that MS-DOS v6 will have many new features commonly found in utility programs, such as virus protection. One of the most useful new features expected in MS-DOS v6 is disk compression that will generally double the amount of information you can store on your hard drive.

> **The microcomputer industry is more familiar with copyright lawsuits than with patent suits (some would say that the industry is all too familiar with both).**

Copyright © 1993 by Paul Hoffman. All rights reserved. Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) or CompuServe (71545,346). He also writes popular microcomputer books.

STAC Electronics is probably the best known manufacturer of hardware and software for compressing data on hard disks. Its Stacker program is one of the best-selling utilities for the PC, with almost a million users. Further, STAC licenses its technology to many of its competitors, and claims over four million users of programs utilizing STAC licensed technology.

STAC recently sued Microsoft for patent infringement for the technology Microsoft is using in the beta test versions of MS-DOS. STAC claims that Microsoft had previously wanted a free license from STAC, but went ahead and included the data compression portion of MS-DOS v6 without a license. At press time, Microsoft has denied infringing but has not responded to the lawsuit, although an official denial is expected.

The microcomputer industry is more familiar with copyright lawsuits than with patent suits (some would say that the industry is all too familiar with both). The laws for patents are very different from those for copyright, although the end result is the same: protection from copying. For STAC to be successful in its suit against Microsoft, it will have to prove many things; if it loses the lawsuit, it also risks losing its patents, which could be devastating for the company. Clearly, Microsoft's inclusion of disk compression in MS-DOS v6 has scared STAC enough to make it take this very risky step.

Microsoft can win the suit in many different ways. The two most common ways to defend yourself against charges of patent infringement are to either show that the thing you're doing doesn't relate to the patent, or to show that the patent should never have been granted in the first place. It is likely that Microsoft will use both strategies in its defense.

STAC is basing its lawsuit on two patents, called the "009" and the "745" patents, after the last three digits in the patent numbers. If Microsoft can show that the data compression it uses is even slightly different from what's described in the "009" and "745" patents, it can win the suit easily. Therefore, those patents must be sufficiently broad for STAC to prove that the compression method used by Microsoft infringes. If the patent is too narrow, Microsoft can easily show that it is not infringing, or simply change its current method to one that doesn't infringe.

Having a broad patent is no panacea, however. The broader the patent, the easier it is to get the patent invalidated. In order to get a patent, you must prove that the method you are patenting has not been used before. The narrower the patent, the less likely the previous use; the broader the patent, the easier it is to find examples of previous use that predate the patent. Thus, if STAC's "009" and "745" patents are very broad, Microsoft can win its case by getting the patents invalidated. Such an action would also probably ruin STAC, since its licensing fees are based on its ownership of those patents.

This is the most important difference between copyright and patent law. It is very difficult to lose the copyright on something you created, but it is common in patent lawsuits to actually lose the patent. Just because someone in the US Patent Office decided that your patent application was valid, this is not definitive. Patent lawyers commonly find examples of patented methods in the industry literature, and thereby invalidate patents in court.

Many other facts are in dispute in the case.

Visit JDR's Catalog Outlet and you'll find:

- ***Many prices 10%-50% below catalog list prices***
- ***24-hour average turnaround on system repairs***
- ***FREE INSTALLATION OF ANY JDR PC PRODUCT***

SPECIAL OF THE MONTH

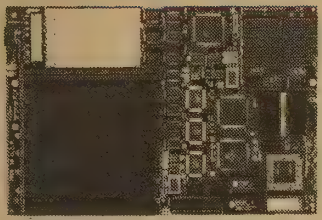
6' Parallel Printer Cable (DB25P-CEN36P)
6' Serial Cable Male-Male (DB25P-DB25P)
6' Serial Cable Male-Female (DB25P-DB25S)

Your Choice

$1.99

MODULAR CIRCUIT TECHNOLOGY

66MHz 486DX2 V.E.S.A. Local Bus Motherboard with 64Kb Cache

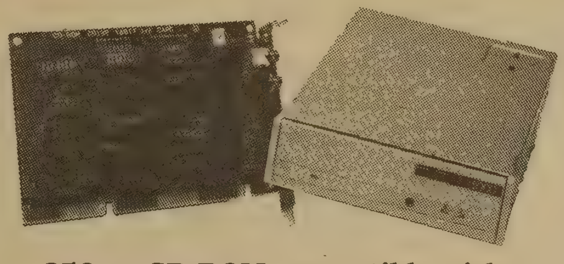


NEW

$899.95

- **NEW - AT CATALOG OUTLET ONLY**
- **VLB IDE w/ FDC, Multi I/O - $99.95**
- **VLB SVGA with 1MB RAM - $149.95**

Low-Cost Internal CD-ROM Drive



- **350ms CD-ROM compatible with MPC, Kodak PhotoCD & High Sierra**
- **Includes CD-ROM drive, interface, cables and documentation**

CD-ROM bundles available when you purchase a CD-ROM!

$249.95

CD-ROM Software

C Users Group Archive	$34.95
CICA Windows Utilities	$19.95
Internet OS/2 Archive	$19.95
Original Shareware	$29.95
Wing Commander II	$59.95
Sleeping Beauty	$39.95
Chessmaster 3000/Win	$49.95
Beauty and the Beast	$39.95
Battle Chess	$59.95
Where is Carmen Sandiego	$39.95
Our Solar System	$29.95
World Atlas	$49.95
San Diego Zoo's Animals	$49.95
Vistapro/Makepath	$99.95
Ham Radio	$29.95
Electronic Home Library	$49.95

Too Many Titles To List - Come In To See More Titles!

CONNER

IDE Hard Drives

CP-3000 42MB 28ms *8Kb Cache*	$149.95
CP-30084 84MB 19ms *32Kb Cache*	$199.95
CP-30104 120MB 19ms *32Kb Cache*	$249.95
CP-30204 210MB 12ms *256Kb Cache*	$399.95
CP-3544 544MB 12ms *256Kb Cache*	$949.95

Serving you since 1979

JDR Microdevices®

25MHz 386SXL Notebook Computer

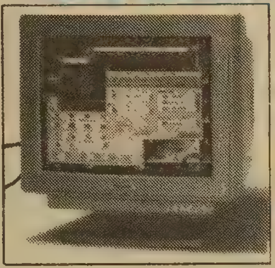
- **25MHz 386SXL with Power Management**
- **4MB RAM, exp. to 8MB / 3.5" 1.44MB FD**
- **80MB 19ms IDE HD / 9.5" 640x480 LCD**
- **Incl. Built-in Trackball / 84-key Keyboard**
- **Incl. 2400bps Modem AND 9600bps Fax**
- **Mouse, modem, kbd, par, ser & VGA ports**
- **MS-DOS 5, Windows 3.1 AND WinFax Lite**
- **Battery, AC Adaptor, & manual included**

NEW from JDR!

$1699.95

RELISYS

17" 1024x768 Non-Interlaced Monitor



.26mm Dot Pitch

$899.95

Relisys 14" 1024x768 N.I.	**$339.95**
MCT 1024x768 1Mb SVGA	**$99.95**
Diamond SpeedSTAR/24X	**$169.95**

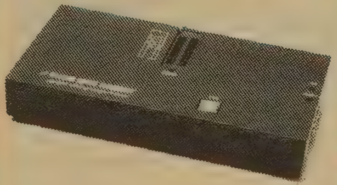
Windows Accelerator with 1 Megabyte of Video RAM and support for 16.7 million colors in 640x480 graphics mode. 5 Year Manufacturers Warranty!

JDR INSTRUMENTS™

100MHz Multifunction Counter	***$169.95***
1GHz Multifunction Counter	***$179.95***
Sweep Function Generator	***$169.95***
Audio Oscillator/ Counter	***$169.95***
3.5-Digit Digital Multimeter	***$24.95***
Full-Function Digital Multitester	***$69.95***

MODULAR CIRCUIT TECHNOLOGY

Universal Programmer/Tester



Regularly $699

$499.95

- **Programs EPROMs, EEPROMs, PALs, GALs, PEELs, FPLs, PLDs, EPLDs & more**
- **Tests TTL, CMOS, SRAMs and DRAMs**
- **Includes interface, cable and software**

Datarase II EPROM Eraser	**$39.95**

Bargain Hunters' *Specials*

Universal Programmer	*regularly $499.95*	**$299.95**
101-key Keyboard	*regularly $34.95*	**$19.95**
Teac Combo 1.2/1.44 FD	*regularly $139.95*	**$99.95**
Auto Fax/Modem Switch	*regularly $84.95*	**$49.95**
14.4Kbps Fax/Modem	*regularly $229.95*	**$169.95**
Real IBM 84-key Keyboard	*Special Buy*	**$29.95**
12VDC Gell Cell Battery	*Special Buy*	**$19.95**
WD1003 16-bit MFM Contr.	*Special Buy*	**$9.95**

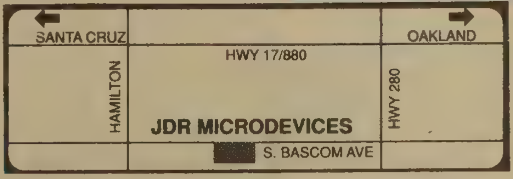
All Bargain Hunters' items are limited to stock on hand and are covered by our standard warranty; 30-day money-back guarantee and one-year warranty. All items listed above are Catalog Returns that have been tested and are in good working order. There are many Bargain Hunters' items not listed and stock in this area is constantly being updated. Check out the latest bargain specials today!

Serving you since 1979

JDR Microdevices®

CATALOG OUTLET

1238 South Bascom Avenue
San Jose, CA 95128 408-559-7724 Fax: 408-947-8234



Prices effective 3/8/93 through 3/31/93 at this location only.

30-day Money-Back Guarantee and 1-Year Warranty!!!

Microsoft made a big deal about IBM's failure to fully meet its goals when releasing OS/2 v2 last year, but now it will probably have to accept the same derision.

Microsoft has publicly claimed that STAC has "never given any indication that they had any problems with us." In the STAC lawsuit, however, STAC claims a progression of meetings in which they and Microsoft tried to negotiate an agreement. STAC says that Microsoft would not pay any royalty on the patents, however.

It is likely that STAC's view of the negotiations are closer to reality than Microsoft's, but it isn't clear whether that will be at all important to the court in deciding whether or not there was an infringement of the patents or whether the patents are even valid.

WINDOWS NT NEWS

Amid rumors that Windows NT is running behind its already delayed schedule, Microsoft has insisted that it's not backing down from the commitment to create a full-featured advanced operating system that will compete with, and possibly supplant, UNIX.

While the rumors may just be more of the Microsoft-bashing that seems to be common among users and competitors, many developers have noted that there are still big holes in the beta test copies they have received. Further, the holes are in areas that are difficult to test, such as networking; therefore Microsoft will be taking big risks by releasing Windows NT without having had full betas being out for a few months. The current schedule is for Windows NT to be released commercially in June.

Microsoft made a big deal about IBM's failure to fully meet its goals when releasing OS/2 v2 last year, but now it will probably have to accept the same derision. Further, OS/2 is still doing acceptably in sales and in commitments from major IBM clients. Although Windows NT has many developers promising to write for it, so did OS/2 v2 before it was released. Microsoft may be just as embarrassed as IBM was about how few packages really need to run under its operating system, and how many companies are just as happy to write for Windows 3.1 and assume that the programs will run acceptably under OS/2 or Windows NT.

Novell, which recently bought the rights to the UNIX operating system, is putting a lot of pressure on Microsoft on many fronts. Last month, Novell previewed the next version of NetWare, which has many networking features that are not expected in the first version of Windows NT. For example, NetWare v4 will have vastly expanded directory services that make setting up new users on the network much easier than in the current versions. This

Continued on page 26

EXCELLENCE IN QUALITY & SERVICE

MICRONICS
VESA Local Bus
Truly The First VESA Compatible Local Bus System
486 DX/33 Complete System . . . $2195
486 DX/50 Complete System . . . $2395
486 DX/66 Complete System . . . $2595
Above System Includes:
Micronics Local Bus Video Card w/1MB • 4MB RAM • 120MB Hard Drive • 1.2 & 1.44 Floppy Drives • Non-Interlaced 14' SVGA Monitor • DOS 5.0 • Windows 3.1 • 101 Keyboard • Mouse • Mid-Tower Case • 2 Serial, 1 Parallel & 1 Game Ports
We also carry other Local Bus Systems

COMPAQ
Prolinea 4/33 120W
• 486-33 • 120MB HD • 4 MB RAM • DOS • Windows • PFS Works • & Mouse
$1745

FREE TRAINING

SCO
THE SANTA CRUZ OPERATION
Authorized Reseller SCO UNIX
We offer complete "Turn-key" multi-user & multi-tasking solutions under SCO UNIX. ISA & EISA systems for 4 to 128 users. Up to 128MB RAM & 34GB hard drive array supported. Multi-processor systems are also available.
We carry a full line of hardware options and software solutions for SCO UNIX.

OUR SERVICES INCLUDE
•FREE Needs Analysis
•FREE Installation of Software on System purchase
•FREE 1 hour data transfer from your existing computer
•Lifetime technical support
•5 Year Labor, 1 Year Parts Warranty
•Complete Turnkey Solutions
•On-Site Service Available

486-DX33/50/66 MHZ
120MB Hard Drive Super VGA Systems
•64K Cache
•4MB RAM
•120MB Hard Drive
•SVGA Monitor, .28 dp
•SVGA Card w/1MB
•2 Serial, 1 Parallel, & 1 Game ports
•Mid Tower case
•Enhanced 101 keyboard
•MS DOS 5.0
$1595/1775/1875

HEWLETT PACKARD
PRINTERS
DeskJet 500 . . . . . $375
DeskJet 500C 499
DeskJet 550C 699
LaserJet IIIP 935
LaserJet 4 1,349
LaserJet 4M . . . . . CALL

1554 Newell Avenue
Walnut Creek, CA 94596
Hours: M-F 9-6 Sat 11-4
(510) 906-1690
Fax (510) 906-1699

Systems Unlimited
1554 Newell Avenue, Walnut Creek, CA 94596
Closed last Saturday of the month • Prices subject to change w/o notice

COME VISIT OUR SHOWROOM ON THE PENINSULA AND IN THE SOUTH BAY

MOTHERBOARDS

Orchid VLB 486DX-33 256K Cache w/o CPU	$314
486DX-50MHz 256K Cache VLB Intel Chip	$666
486DX-33MHz 256K Cache VLB Intel Chip	$519
486DX-50MHz 256K Cache Intel Chip	$625
486DX-33MHz 256K Cache Intel Chip	$480
486SX-25MHz w/CPU	$240
386DX-40MHz W/128K Cache w/CPU	$180
386SX-33MHz w/CPU	$120

VIDEO CARDS

ATI Ultra Pro w/2MB VRAM	$450
ATI Ultra Plus w/2MB DRAM	$350
Diamond 24X 24 Bit Hi-Color	$150
Diamond Stealth 1M VRAM Hi-Color	$195
Trident SVGA 1M	$60
16 Bit VGA 256K	$30
Genoa Local Bus w/1M	$155

KEYBOARDS

Focus 2001/5001	$40/62
Keytronics 101	$38
Maxi Switch 101	$36
101 Keyboard	$30

MONITORS

15" MAG	$635
17" MAG	$1185
15" NEC 4FG flat screen	$769
15" NEC 3FGX flat screen	$669
14" SVGA 0.28 (non-interlace)	$320
14" SVGA 0.28	$270
14" SVGA 0.39	$230
14" Mono Monitor	$98
12" Mono Monitor	$75

HARD DRIVES

Conner, Maxtor, Western Digital, Seagate, Quantum, NEC, Fujitsu (ALL SIZES)	CALL

THE LEADER IN CUSTOMER SERVICE

WE'LL MAKE SURE YOU LEAVE FEELING SATISFIED BECAUSE YOUR SATISFACTION IS OUR BIGGEST GUARANTEE.

SALES • SUPPORT
1 YEAR PARTS
LIFETIME ON LABOR
WARRANTY
SERVICE

The Fastest CD-ROM

- Toshiba 3401 Series CD ROM
- Full Integrated Audio
- MPC Compliant
- Supports Multi-Session Kodak Photo CD
- 200ms Random Access Time
- 330KB/Sec Transfer Rate
- 256K Buffer

Internal	$488
External	$588

WE OFFER COMPLETE INSTALLATION, UPGRADES & A LOT MORE!

TAPE BACKUP

Colorado DJ20 250MB	$225
Colorado DJ10 120MB	$170

FLOPPY DRIVES

TEAC 1.2M/1.44M	$60/58
Chinon 1.2M/1.44M	$56/54

CASE & POWER SUPPLY

Mini Vertical w/200W PS	$60
Med Vertical w/200W PS	$85
Big Vertical w/230W PS	$120
Baby AT Case w/200W PS	$60
AT Deluxe Case	$52
AT 230W/XT 150W PS	$49/39

MISCELLANEOUS

US Robotics Sportster 14.4 V. 32, V.42BIS MNP5 Internal	$299
Logitech Mouseman serial/bus	$65/65
96/24 send/receive Fax modem	$60
2400 internal modem w/MNP5	$38
Serial Mouse 400 dpi	$15

The Best Buy CD-ROM

- External CDR-25 NEC
- 1 Pair of Amplified Speakers w/Batteries
- SCSI Interface
- 10-CD-ROM Software Titles
  - Lucasfilm Games Loom
  - Publish It!
  - Great Cities of the World, Vol 2
  - Interactive Storytime
  - Total Baseball
  - The Family Doctor
  - Geo Works CD Manager
  - The Software Toolworks Reference Library
  - Bureau Development Inc. Best of Bureau
  - Ultima VI The False Prophet/Wing Commander

$448

VESA 486DX Local Bus Complete System

486DX-33MHz	$1477
486DX-50MHz	$1627
486DX2-66MHz	$1712

- Intel CPU w/8K Internal Cache, Math-Coprocessor
- AMI BIOS/Clock, Calendar
- 256K of Ultra-Fast Cache
- **4MB (70ns) Memory** (Expandable to 128MB on Board)
- 1.2MB & 1.44MB Floppy Drive
- **125MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- 2 Serial, 1 Parallel, 1 Game Port
- **Genoa 32 Bit Local Bus SVGA Card w/1MB**
- **14" Super Non-Interlaced VGA Monitor (1024x768) .28 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/230W PS

486DX ISA Complete System

486DX-33MHz	$1307
486DX-50MHz	$1457
486DX2-66MHz	$1542

- Intel CPU w/8K Internal Cache, Math-Coprocessor
- AMI BIOS/Clock, Calendar
- 128K of Ultra-Fast Cache (Expandable to 256K Cache)
- **4MB (70ns) Memory** (Expandable to 128MB on Board)
- 1.2MB & 1.44MB Floppy Drive
- **125MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card**
- **14" Super Non-Interlaced VGA Monitor (1024x768) .28 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/230W PS

486SX-25 Complete System

$1090

- **Intel 486SX-25 MHz CPU**
- Landmark Speed = **112 MHz**
- 8K of Internal Cache
- **4MB (70ns) Memory** (Expandable to 32MB on Board)
- 1.2MB & 1.44MB Floppy Drive
- **125MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- Clock/Calendar
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card (1024x768) w/512K**
- **14" Super VGA Monitor (1024x768) .28 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/230W PS

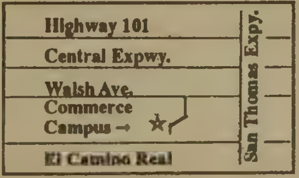
386DX-40MHz Complete System

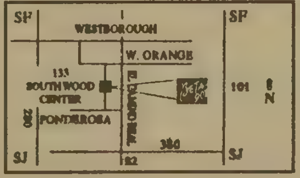
$999

- **AMD 80386-40MHz CPU**
- Landmark Speed = **65MHz**
- AMI BIOS
- 128K Ultra Fast External Cache (Expandable to 256 Cache)
- **4MB (70ns) Memory** (Expandable to 32MB on Board)
- 1.2MB & 1.44MB Floppy Drive
- **125MB IDE Hard Drive**
- 1:1 2H/2F IDE Controller
- Clock/Calendar
- 2 Serial, 1 Parallel, 1 Game Port
- **16 Bit SVGA Card (1024x768) w/512K**
- **14" Super VGA Monitor (1024x768) .39 Dot**
- 101 Enhanced Keyboard
- Mini Tower w/230W PS

C&J COMPUTER
2370-A Walsh Ave., Bldg. C
Santa Clara, CA 95051
408/727-0788
Fax 408/727-1209

VISA MasterCard





Monday-Friday 9:30-6:00 • Saturday 10-5

BETA NINETIES COMPUTER, INC.
133 Southwood Center
South San Francisco, CA 94080
415/875-6682
Fax 415/875-6683

BETA NINETIES COMPUTER, INC.
1655 South Main Street
Milpitas, CA 95035
408/956-8800
Fax 408/956-1236
(Main St. & Montague Expressway)

BEST PRICE GUARANTEED!

BAY AREA COMPUTERS

9TH YEAR IN BUSINESS

Guarantees the very lowest prices.

PORTABLE COMPUTING FROM B.A.C.

TOSHIBA T-1850 $1529
- 4 MEG RAM
- 80 MEG H.D.
- MOUSE
- 386SX/25

TOSHIBA T-3300SL $1949*
- 120 MEG H.D.
- 2 MEG RAM
- 386SL
- FREE 2 MEG UPGRADE

* AFTER REBATE

COMPAQ CONTURA $1699
- 120 MEG H.D.
- 4 MEG RAM
- 386SL-25

COMPAQ LTE $1249
- 60 MEG HARD DRIVE
- 2 MEG RAM

TOSHIBA T-1850C $2149
- COLOR
- 80 MEG H.D.
- 4 MEG RAM

TOSHIBA T-4400SX $2349
- 120 MEG H.D.
- 2 MEG RAM
- 486 C.P.U.

COMPAQ COLOR CONTURA $2299
- 386SL/25
- 120 MEG H.D.
- 4 MEG RAM
- DOS

COMPAQ LTE LITE $1688
- 20 MHz
- 60 MEG H.D.
- 2 MEG RAM

TOSHIBA T-4500C $3799
- 120 MEG H.D.
- 486 SL/25
- ACTIVE COLOR
- IN STOCK!

TOSHIBA T-4400C $3499
- 120 MEG H.D.
- 4 MEG RAM
- ACTIVE COLOR
- IN STOCK!

COMPAQ CONTURA 84/4 $1588
- WINDOWS/WORKS
- DOS/TRACKBALL

COMPAQ LTE LITE 386/25C $3399
- 84 MEG H.D.
- ACTIVE COLOR
- WORLD WIDE WARRANTY

AST POWER EXEC 486/25SL $3899
- 4 MEG RAM
- 80 MEG H.D.
- ACTIVE COLOR

COMPAQ LTE LITE $3899
- 120 MEG H.D.
- ACTIVE COLOR
- 486/25 SL

COMPAQ LTE LITE/E $3049
- ACTIVE MONOCHROME
- 120 MEG H.D.
- 4 MEG RAM

COMPAQ LTE LITE 386/25 $2549
- 120 MEG H.D.
- 4 MEG RAM
- 386 SL/25

TEXAS INST. TM4000 WIN DX2/50 $3299
- 200 MEG H.D.
- 4 MEG RAM
- 486 CPU

TEXAS INST. TM4000 WIN SX/25 $2349
- 120 MEG H.D
- 4 MEG RAM
- DOS, WINDOWS

TEXAS INST. TM4000 WIN SLC/25 $2079
- 80MEG H.D.
- 4 MEG RAM
- 486 SL CPU

TEXAS INST. TM4000 WIN SLC/25 $1799
- 60 MEG H.D.
- 2 MEG RAM
- DOS, WINDOWS.

CEDARS Power, Performance & Price

*Includes Mouse, DOS, Windows

486/50DX* $2399
- 8MB RAM
- 200MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- SVGA System
- 1 MB SVGA Card
- FAX/Modem

486/33DX* $1899
- 4MB RAM
- 200MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- FAX/Modem
- SVGA System

386/33* $1399
- 4MB RAM
- 120MB Hard Drive
- 1.2 & 1.44 Floppy Drive
- FAX/Modem
- SVGA System

Macintosh Accessories

- E-MACHINE 16" MONITOR $599
- CMS 660 EXT HARD DR. $999
- APPLE ETHNT TRANSCEIVER $79
- SUPRA 14.4 FAX MODEM $329
- ASANTE NETWORK 10BT CARDS $79
- POWERBOOK CASES $89

Authorized Dealer
HEWLETT PACKARD
AST
COMPAQ
NEC
AT&T Computer Systems
TOSHIBA
EPSON
IBM

BAY AREA COMPUTERS

Our 9th Year In Business

VISA MasterCard

Prices good thru 4-5-93

(415) 393-9600

130 Sansome St., San Francisco, CA 94104 at Bush

Prices subject to stock on hand
Prices reflect 3% cash discount.

Hours:
9-7 M-F
11-5 Sat.

Bring this ad in to get these prices!

BEST PRICE GUARANTEED!

BAY AREA COMPUTERS

9th Year in Business

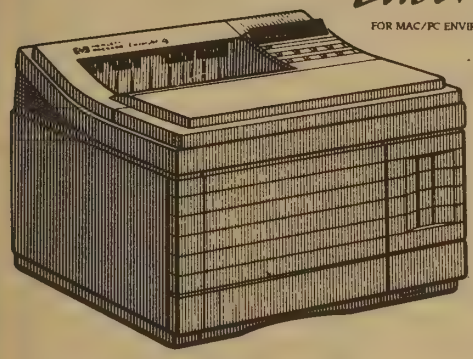
is your source for HEWLETT PACKARD Computers, Printers, & Plotters

We guarantee the lowest prices

LaserJet 4
FOR PC/WINDOWS USERS

LaserJet 4m
FOR MAC/PC ENVIRONMENT

$1359



LaserJet 4
For PC/Windows Users
LaserJet 4m
For Mac/PC Environment

IN STOCK!

HP LASERJET 4 PRINTER

- Resolution Enhancement technology and microfine toner for superior output quality
- Fast 8 ppm printing for complex document
- 6MB memory standard
- Additional network capabilities (optional)

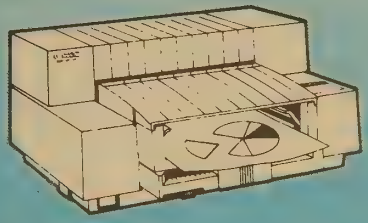
HEWLETT PACKARD

DESKJET 500, 500C, 550C

500 **$379**

500c **$499**

550c **$699**



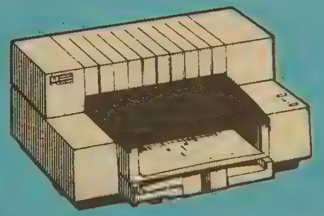
550c
- 300 dpi printing
- 7 ppm in best mode
- Extremely quiet operation
- 3 year manufacturer's warranty

DESKWRITER 500, 500C, 550C

Deskwriter **$399 ***

Deskwriter c **$499 ***

Deskwriter 550c **$699**



DW550c
- Affordable laser-quality printing
- 300 dpi color printing
- Wide variety of built-in fonts
- 3 year warranty

* Plus $50 Rebate

LaserJet IIP Plus Printer

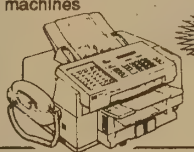
- Lowest price of any HP LaserJet printer for the most affordable solution
- 300 dpi text and graphics provide publication quality printing
- Small footprint makes this the ideal desktop HP LaserJet printer
- Support by virtually all popular PC software packages ensures maximum use
- Paper handling, additional memory, printer language and font accessories expand functionality

$768

HP FAX-310

- Advanced features and plain-paper for one low price
- No more flimsy thermal faxes to recopy
- Better output quality than thermal fax machines

$1099*



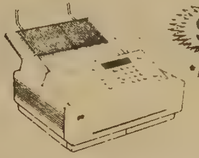
*After Rebate

LaserJet FAX

Turns your HP LaserJet into a FAX machine

$688*

*After Rebate



LaserJet IIIP Printer

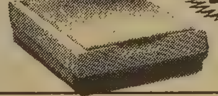
- Superior 300-dpi print quality
- PCL5 allows you to scale type to thousands of sizes
- All the HP LaserJet III printer features in a compact size and at a low price
- Prints fonts, graphics and complex documents faster than other laser printers in its class

$939

HP Scanjet IIC Scanner

- Ideal for both monochrome and color graphics and text
- High quality 400 dpi resolution
- Fast, one pass image scanning with superior color registration
- Automatic exposure selects the best brightness and contrast for you
- Live preview for immediate feedback on changes

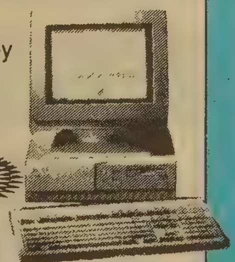
Best Price



VECTRA 486/33N

- 4 MB
- 1.44 Floppy Drive
- UVGA
- 101KB

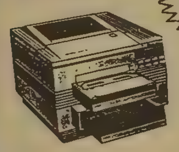
$1499



LaserJet IIIsi Printer

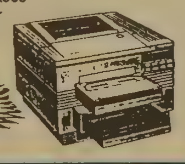
- Fast 17-ppm printing
- 300DPI resolution
- HP PCLS language
- Networkable

Will Beat Any Price!



LaserJet IIID Printer

- Advanced paper-handling
- Resolution Enhancement for the best 300-dpi printing
- Ideal for high-volume, multi-user environments
- Wide variety of easy-to-use, scalable, built-in typefaces
- Optional envelope feeder handles 50 envelopes



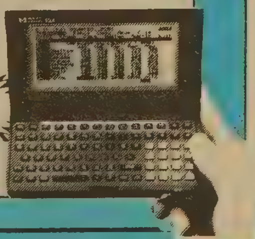
$2199

HP 95LX Palmtop PC

PC power in the palm of your hand

- Lotus 1-2-3
- 1Meg RAM

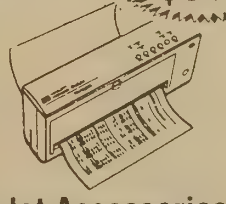
$568 In stock



HP DeskJet Portable Printer

- 300dpi Laser-Quality Printing
- Small, Lightweight Size— Weighs just 4.4 lbs.
- Fast Print Speed — up to 3 Pages Per Minute
- Prints up to 100 Pages on a Single Battery Charge

$389



HP Portable DeskJet Accessories

Worldwide Rapid Recharger	$89
Battery	$39
Carrying Case	$89
Cut Sheet Feeder	$44

Authorized Dealer
HEWLETT PACKARD
OKIDATA
COMPAQ
NEC
AT&T Computer Systems Authorized Dealer
TOSHIBA
EPSON®
IBM

Bring this ad in to get these prices!

BAY AREA COMPUTERS

Our 9th Year In Business

Prices good thru 4-5-93

(415) 393-9600

130 Sansome St., San Francisco, CA 94104 at Bush

Prices subject to stock on hand. Prices reflect 3% cash discount.

Hours:
9-7 M-F
11-5 Sat.

Microsoft has some other major workstation vendors, notably DEC, who are betting the future of their low and middle series on Windows NT.

Continued from page 22

allows a system administrator to give a particular user on the network the right to use resources on different servers. Because this feature is not expected in Windows NT for over a year, many companies who were debating between staying with NetWare or going to Windows NT will probably commit to NetWare v4, which will be available within the next few months.

The pressure from Novell could not come at a worse time for Microsoft. If Windows NT came out before NetWare v4, Microsoft could at least make it look like Novell was playing catch-up. However, since Novell will beat Microsoft by a few months (and possibly many months, if Microsoft's ship date slips), Novell will get to set the rules for which features are considered most important. With the likely merging of features between UNIX and NetWare within the next two years, UNIX sites that were thinking seriously about Windows NT for their PCs will now also think seriously (probably for the first time) about NetWare.

On the other hand, even though Microsoft may be late with Windows NT, it is still racking up major hardware vendors to support it. Although almost everyone who is anyone in the PC field has already pledged support for Windows NT, those same companies also showed support for OS/2 because such support was free.

Microsoft has some other major workstation vendors, notably DEC, who are betting the future of their low and middle series on Windows NT. DEC is already showing pre-beta versions of its forthcoming Alpha systems running Windows NT. DEC has long been one of the largest proponents of UNIX, and its strong commitment to Windows NT has caused its competitors to look at Windows NT as a serious alternative to UNIX. Recently, Sequent has said that it will promote Windows NT on its low-end machines, and Intergraph will port Windows NT to its proprietary RISC chip in the next two years.

This backing from the non-Intel world may have surprising effects on the standard PC market. While the cost of running Windows NT instead of Windows 3.1 may seem high to many users, if Windows NT offers superior interoperability with the company's file server or graphics server, it may become a required item. For the first few months, most purchasers of Windows NT will be people determining if the extra features are really worth the higher price. When the first RISC-based systems running Windows NT are released, however, it is likely that some companies may want to run Windows NT on their PCs if doing so makes their network more stable. On the other hand, they may decide that UNIX is just fine, particularly if Novell has made it even easier to link NetWare into UNIX networks by then. ■

BERLIN TECHNOLOGY, Inc.

1478-A Fruit dale Ave. * San Jose * CA 95128
Tel. (408) 297 - 7138 * Fax. (408) 297 - 7302

BUY 2 OR MORE SYSTEMS GET 3% DISCOUNT ON PRICE!

386 DX/486 Intel CPU BASIC SUSTEMS INCLUDE:

* OPTI write back cache 64K exp up to 256K cache
exp to 32M on board
* Zero wait state
* New AMI BIOS
* 101 IDE 2HD/2FD Controller
* 101 KB, Teac 1.2 MB or 1.44 MB FDD
* Enhanced Case or Mini Tower case
* 2 Serial/ 1Parallel/ 1Game
* Motherboard w/CPU and 1MB basic memory installed
* 8 EXPANSION SLOTS
* MATH COPROCESSOR SOCKET
* CLOCK/CALENDAR w/BATTERY BACKUP

OPTION A
1.2 & 1.4 Teac + 4 Meg
SVGA Interlace Monitor
(1024x786) Esp or Impression
.28 dot pitch 512K Paradise
Mouse (Microsoft Compat)

OPTION B
1.2 & 1.4 Teac + 4 Meg
NSVGA Noninter Monitor or
Impression (1024x768).28 dot pitch
1 Meg Trident 256 colors
Mouse (Microsort compat)

OPTION C
1.2 & 1.4 Teac + 4 Meg
NSVGA Noninterlace
Viewsonic 6-.28 dot pitch
1 Meg svga ET4000
Mouse (Microsoft Compat)

OPTION D
1.2 & 1.4 Teac + 4 Meg
SVGA NonInterlace
Sony 1304s (1024x786)
.25 dot pitch 1M Orchids prlls
Mouse (Microsoft Compat)

MAXTOR 80 MB $200

SYSTEM	BASIC	OPTION	80Meg	120Meg	200Meg
386-33/40 64K Cache exp 32 Meg on Board	$340	no OP.	$550	$580	$720
		OP. A	$955	$1010	$1125
		OP. B	$1010	$1065	$1195
		OP. C	$1095	$1160	$1300
		OP. D	$1345	$1425	$1565
486-33 64K Cache exp 32 Meg on Board	$580	no OP.	$780	$825	$940
		OP. A	$1200	$1252	$1390
		OP. B	$1265	$1325	$1465
		OP. C	$1345	$1400	$1545
		OP. D	$1600	$1655	$1820
486-50/64K Cache exp 32 Meg on Board	$750	no OP.	$940	$990	$1090
		OP. A	$1340	$1390	$1490
ADD $100 TO UPGRADE 486-66 mhz		OP. B	$1410	$1450	$1565
		OP. C	$1500	$1560	$1660
		OP. D	$1745	$1810	$1920

PERFORMANCE • RELIABILITY SATISFACTION • PERFECTION

R-COMPUTER

QUALITY SYSTEMS THAT HAVE STOOD THE TEST OF TIME

FREE COMPUTER TRAINING WITH SYSTEM PURCHASE

486-33 W/128K CACHE
130MB HARD DRIVE
SVGA SYSTEM

- 486-33MHZ W/128K CACHE CPU
- 4MB RAM
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$1653

intel inside

486-50 W/256K CACHE
170MB HARD DRIVE
SVGA SYSTEM

- 486-50 W/256K CACHE CPU
- 4MB RAM
- 170MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$1898

MULTIMEDIA SYSTEM

TEXEL MEDIA VISION

486-33 W/256K CACHE
CD-ROM, STEREO
130MB HARD DRIVE
SVGA SYSTEM

- 486-33MHZ W/128K CACHE CPU
- 4MB RAM
- TEXEL CD-ROM 256MS
- MEDIA VISION PRO AUDIO
- LABTEK STEREO SPEAKERS
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$2249

486-66 VESA LOCAL BUS
213MB HARD DRIVE
SVGA SYSTEM

- 486-66 W/256K CACHE CPU
- 4MB RAM
- 213MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- FAHRENHEIT 1280 VLB
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$2287

486-25
130MB HARD DRIVE
SVGA SYSTEM

- 486-25MHZ CPU
- 4MB RAM
- 130MB MAXTOR HARD DRIVE
- VIEWSONIC SVGA MONITOR
- SVGA CARD
- 1.2 & 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

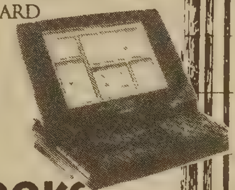
$1443

386SX-25
80MB HARD DRIVE
VGA SYSTEM

- 386SX-25MHZ CPU
- 1MB RAM
- 80MB MAXTOR HARD DRIVE
- VGA MONO MONITOR
- 1.2 OR 1.44MB FLOPPY DRIVE

COMPLETE SYSTEM WITH DELUXE CASE AND KEYBOARD

$789



BCC NOTEBOOKS AVANTI 486 SLC

- 486SLC/25 MHZ PROCESSOR
- 80MB HARD DRIVE
- DOS
- HIGH CONTRAST 10" LCD DISPLAY

$1795

Color Model Available!

VIEWSONIC MONITORS

VIEWSONIC 1	$240
VIEWSONIC 4	305
VIEWSONIC 6	355
VIEWSONIC 5E	410
VIEWSONIC 6FS	595
VIEWSONIC V7	995
MAG17F	1140
VIEWSONIC V8	1580

VIDEO GRAPHICS

ALLCUMOS 256K	$34
TRIDENT 9000	45
TRIDENT 8900	65
DIAMOND SPEEDSTAR 24X	169
DIAMOND SPEEDSTAR 24	149
ORCHID PRO IIS	140
DIAMOND STEALTH	179
FAHRENHEIT 1280	179

LIFETIME LABOR WARRANTY PERSONALIZED SERVICE

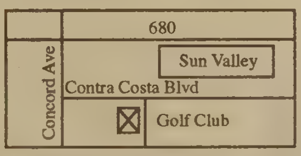
R-COMPUTER

SERVING YOU FOR 8 YEARS

(510) 798-4884

30 GOLF CLUB ROAD, PLEASANT HILL, CA 94523

LANtastic Authorized Dealer



PRICES SUBJECT TO CHANGE W/O NOTICE.

VISA MasterCard

LANtastic by ARTISOFT

LAN TIMES READERS CHOICE 1992

LAN MAGAZINE 1992 PRODUCTS OF THE YEAR

PC MAGAZINE EDITORS' CHOICE April 14 1992 LANtastic Version 4.10

HIGH QUALITY DISK DRIVES - LOW PRICES - EXCELLENT SERVICE

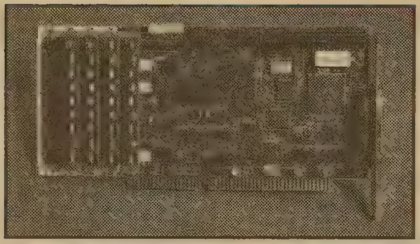
BRAND NEW DRIVES

NEW SCSI HARD DRIVES	Qty 1	Dealer*
Seagate ST1239N, 3.5", 207MB, 15 ms	$469	$449
Seagate ST41200N, FH, 1040MB, 15 ms	$1295	$1249
Micropolis 1578, FH, 338MB, 18 ms	$495	$449

NEW ESDI HARD DRIVES	Qty 1	Dealer*
Toshiba MK358FA, FH, 660MB, 16 ms	$849	$795

NEW CSC IDE AND SCSI FASTCACHE CONTROLLERS	Qty 1	Dealer*
CSC Fastcache IDE, REV B, 2HD/4FD, 0K RAM installed No drivers are required for DOS or OS2 applications; cache to 64MB, supports 4 floppies including 2.88MB drives	$149	$119
CSC Fastcache-64 SCSI, 7HD/4FD, 1MB cache installed Supports up to 7 SCSI hard, tape and CD-ROM, cache expands to 64MB, supports 4 FD, incl. 2.88 MB drives	$249	$229

FULL FIVE YEAR WARRANTY
STANDARD ON ALL CSC CONTROLLERS!


CSC SCSI FASTCACHE ONLY $295

CSC IDE FASTACHE ONLY $175

NEW DISK CONTROLLERS	Qty 1	Dealer*
DTC 6282-24, 16 bit, ESDI, HD/FD, 24 MBit, 32K cache	$129	$125
DTC 3280AS, 16 bit, SCSI, ASPI, w/Novell, OS2, CD-ROM drivers	$149	$145
SDC800, economy 8 bit SCSI for DOS	$29	$25
WD1007AB, Western Digital, 16 bit ESDI, 2HD/2FD	$39	$35

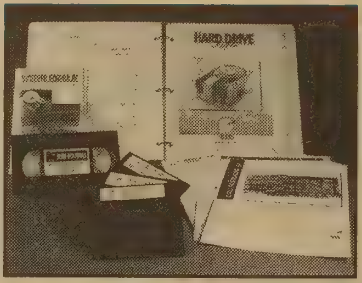
NEW DRIVES HAVE A ONE YEAR WARRANTY;
EXTENDED WARRANTIES ARE AVAILABLE

*** Dealer Pricing: Just order 2 or more identical units.**

NEW CD ROM DRIVES	Qty 1	Dealer*
NEC SCSI, External, Multimedia CD ROM, 1 year warranty	$295	$289
Tandy CD ROM Kit, cables, Adapter, Software	$195	$189

HARD DRIVE BIBLE, 6th EDITION, WITH INSTALLATION VIDEO $39.95

The Hard Drive Bible is an encyclopedia of information on hard drives. It contains installation instructions, jumper settings, drive parameter tables, and setup information on hundreds of hard, optical, and tape drives. Also included are jumper settings and compatibility information on controller cards and driver software. Don't miss the benchmark chapter with performance and reliability test reports. This book and the included software are essential for all dealers and system integrators who install hard drives.



Our New Showroom is Now Open at 730 N. North Pastoria Avenue in Sunnyvale

Visit our new retail showroom on Pastoria Ave. in Sunnyvale, just off Mathilda and Hwy. 101. All of the products advertised here are on display. We don't use "call" instead of listing a price. Everything is right up front. Skilled sales and support staff will advise you on your hard disk needs and problems. They'll be glad to make recommendations for hard drive upgrades for DOS, OS/2, Windows, Macintosh, Sun, and Novell applications.

Disclaimer: We are not responsible for typographic or composition errors in pricing or product information.

Maxoptix, Maxtor, Seagate, Toshiba, Tahiti I, Micropolis, DTC, WangDAT, Sun, OS/2, and Novell are registered trademarks of their respective companies.

QUALITY REFURBISHED DRIVES

QUALITY REFURBISHED ESDI HARD DRIVES	Qty 1	Dealer*
Maxtor 8610E, FH, 510MB, 16 ms, 1 year	$495	$475
Maxtor 8800E, FH, 660MB, 13 ms, 1 year	$749	$695
CSC 1.3E, FH, 1300MB, 13 ms, 1 year	$1095	$950

Special Package: Add only $100 to get complete kit
hard drive, caching controller, and cables.

The CSC 1300Mb high performance drive kit offers rock-solid 13 ms ESDI performance that blows any IDE drive away! A fast 22 Mbit/sec interface and true 13 ms average seek coupled with a 20 head design make these ideal for network servers and workstations. Sold as preformatted kits with a new 24 Mbit/sec DTC cache controller. Quantities are limited so call soon to avoid disappointment!

QUALITY REFURBISHED SCSI HARD DRIVES	Qty 1	Dealer*
Maxtor LXT200S, 3.5", 201MB, 15 ms, 1 year	$349	$319
Maxtor LXT340SR, 3.5", 340MB, 15 ms, 1 year	$549	$525
"THE TANK" Maxtor 8760SR, FH, 660MB, 16.5 ms, 1 year	$895	$795
Maxtor PO-12S, FH, 1.2GB, 13 ms, 1 year	$1195	$1095
Maxtor P1-17S, FH, 1.7GB, 13 ms, 1 year	$1495	$1450

SPECIAL PACKAGE:
Add only $229 to above drives and get CSC's FastCache 64 with 1 MB RAM and all the cables.

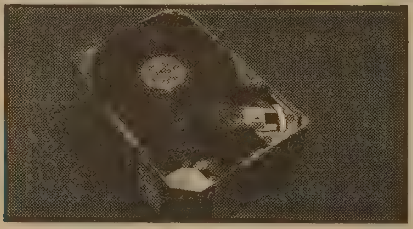
QUALITY REFURBISHED TAPE DRIVES	Qty 1	Dealer*
WANG1300 WangDat SCSI Tape Drive, HH, 1.3GB, 4 mm	$895	$849
EXABYTE 8200 SCSI 2.2GB F/H 8 mm RFB, 1 year	$995	$895

QUALITY REFURBISHED IDE HARD DRIVES	Qty 1	Dealer*
Maxtor 2585A, 2.5", 85MB, 15 ms, ideal notebook drive	$209	$189
Maxtor LXT213A, 3.5", 213MB, 14 ms, 1 year	$369	$339

QUALITY REFURBISHED OPTICAL DRIVES	Qty 1	Dealer*
Maxtor RXT800S, HH, SCSI, 800MB, WORM	$495	$449
Maxtor RXT800HSR, FH, SCSI, 800MB, WORM	$395	$379
Maxoptix Tahiti I, SCSI optical drive, 1 GB, 35 ms, 90 day	$1295	$1195
Maxtor OC1000-1024, Erasable media, 1058MB, 1024 byte	$149	$99

The Maxoptix Tahiti I drive is a high performance erasable optical drive which uses 650MB ISO and 1 GB(!) Maxoptix cartridges. The removable cartridges are virtually indestructible and as fast as many hard drives! Need another gigabyte? Just pop in an inexpensive erasable disk! The cartridges are rugged, erasable, with an unlimited useful life. These drives are available as internal or as external units.

SPECIAL: CSC Tahiti Megatower - Complete external Tahiti-I drive, perfect for PC, MAC, or Sun applications..$1495


640 MB Maxtor 8760S $595 to $895

1 GB Megatower $1495

CSC factory refurbished drives are available at competitively low prices, and are completely rebuilt, not just repaired. All drives are burned in, and tested using final test factory equipment. Every refurbished drive is backed by CSC's fast-turnaround 90 day or one year warranty, and extended warranties up to 5 years are available. All CSC refurbished drives meet or exceed manufacturer's new drive specifications. You won't find a better buy.

ORDERS AND INFORMATION:

Call for a free catalog and price list. Advice is always free! We gladly accept VISA or Mastercard orders in addition to COD and prepaid orders. There is never a surcharge for credit card orders. Call today for information. Honest formatted drive capacities are listed in this ad! Prices are subject to change without notice.

CORPORATE SYSTEMS CENTER

730 North Pastoria Avenue
Sunnyvale, California 94086
Phone: (408) 737-7312
FAX: (408) 737-1017

Call between 7:30 AM and 5:30 PM PST, M-F, for advice; and to check stock and place your order. Most orders are shipped within 48 hours. UPS and Federal Express surface, second day, and next day shipping are available. Economy truck shipping is available for large orders upon request. Fed-Ex Saturday delivery is available in most areas.

CSC111892 – Copyright © 1992, Corporate Systems Center.

MICROTIMES INDEX HITS RECORD HIGH

Spurred on by lower interest rates and the nation's lowest employment rate in the last year, technology stocks picked up where they left off last period.

When the books were closed on the monthly trading session, the MicroTimes Stock Index stood 63.31 points higher, or 1.57%, at yet another high of 4083.40. Our indicator, however, paled in comparison to the Dow Jones Industrial Average, which smashed through its old record en route to a new high of 3442.14 — up 5.5%, or 179.39 points.

Turning to technology shares last month: After posting its first-ever operating loss last period, IBM's CEO and chairman, John Akers, agreed to step down as the company's CEO as soon as a successor is chosen. Additionally, for the first time in IBM's history, the firm slashed its quarterly dividend by about 55%, to 54 cents a share, from $1.21, where it had remained since May 1989. IBM's stock, however, rallied from its new 52-week low of $43.88, to its close of $52, up $4.25 a share, or 8.9%.

In earnings news, AT&T reported a 57% rise in net income in its fourth-quarter. Specifically, the company reported fourth-quarter earnings of $1 billion, or 75 cents a share—up markedly from profits of $635 million, or 48 cents a share, 3.88%-gain, during the three-week long trading stanza, climbing to its new 52-week high of $55.25, before slipping to its closing mark of $53.50.

Adobe Systems led all shares on a dollar-gained basis last session, as that stock soared 22.43%, or $7.63 a share, before concluding the trading stanza at $41.63. Last period, the firm reported fourth-quarter earnings slightly above analysts' expectations. Specifically, Adobe posted fourth-quarter earnings of 37 cents a share, down from 57 cents a share reported in the year-earlier quarter. Separately, shares of the company were raised to "market performer" from "underperformer" at Openheimer & Co.

In stark contrast, Dell Computer plummeted $7.13 a share, leading all shares on a southerly course and taking largest dollar-loss dishonor. Last period, Prudential Securities cut its investment rating for the computer concern to "hold" from "buy," citing the stock's excessive price for the downgrade. Dell fell from its 52-week high of $49.88 to its close of $39.25, off 15.36% from its previous close. ■

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 01/11/93	CLOSING PRICE 02/05/93	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE											
OTC	Adobe		ADBE	34.00	41.63	7.63	22.43	22	0.32	0.77	63.50	25.25
OTC	Aldus		ALDC	14.50	16.75	2.25	15.52	36	0.00	0.00	34.25	10.25
OTC	Autodesk		ACAD	49.75	43.63	–6.13	–12.31	26	0.48	1.10	56.50	23.25
OTC	Borland	(L)	BORL	20.25	19.88	–0.38	–1.85	–	0.00	0.00	78.00	17.50
OTC	Informix	(H)	IFMX	34.75	38.25	3.50	10.07	29	0.00	0.00	42.00	12.13
OTC	Lotus		LOTS	19.75	24.25	4.50	22.78	13	0.00	0.00	38.75	14.75
OTC	Microsoft		MSFT	89.13	89.00	–0.13	–0.14	32	0.00	0.00	95.00	65.50
OTC	Novell		NOVL	31.50	30.00	–1.50	–4.76	37	0.00	0.00	33.50	22.50
OTC	Oracle	(H)	ORCL	29.50	32.00	2.50	8.47	52	0.00	0.00	36.38	12.00
OTC	Software Publishing		SPCO	9.25	12.50	3.25	35.14	–	0.00	0.00	26.25	6.75
OTC	Symantec		SYMC	13.00	12.13	–0.88	–6.73	–	0.00	0.00	48.75	5.88
	HARDWARE											
OTC	Apple		AAPL	64.13	57.25	–6.88	–10.72	13	0.48	0.84	70.00	41.50
OTC	AST Research		ASTA	22.25	17.50	–4.75	–21.35	10	0.00	0.00	24.25	11.25
NYS	Commodore	(L)	CBU	6.38	5.50	–0.88	–13.73	–	0.00	0.00	16.25	5.38
NYS	Compaq	(H)	CPQ	50.50	48.13	–2.38	–4.70	19	0.00	0.00	58.50	22.25
NYS	Digital Equipment		DEC	35.25	42.25	7.00	19.86	–	0.00	0.00	65.50	30.38
OTC	Dell	(H)	DELL	46.38	39.25	–7.13	–15.36	18	0.00	0.00	49.88	15.00
NYS	Hewlett-Packard		HWP	72.75	68.50	–4.25	–5.84	19	0.80	1.17	85.00	50.25
NYS	IBM	(L)	IBM	47.75	52.00	4.25	8.90	–	2.16	4.15	100.38	45.88
NYS	Silicon Graphics	(H)	SGI	28.88	30.38	1.50	5.19	–	0.00	0.00	33.00	14.13
OTC	Sun Microsystems	(H)	SUNW	37.38	35.00	–2.38	–6.35	26	0.00	0.00	41.00	22.50
NYS	Xerox	(H)	XRX	83.88	86.38	2.50	2.98	–	3.00	3.47	87.50	66.75
NYS	Tandy	(H)	TAN	29.38	28.00	–1.38	–4.68	13	0.60	2.14	32.13	22.25
	CPU'S											
NYS	Advanced Micro Devices		AMD	19.88	19.63	–0.25	–1.26	8	0.00	0.00	21.50	7.38
OTC	Intel	(H)	INTC	102.38	106.88	4.50	4.40	22	0.40	0.37	118.00	46.50
NYS	LSI Logic	(H)	LSI	10.88	10.50	–0.38	–3.45	–	0.00	0.00	12.25	4.88
NYS	Motorola		MOT	56.38	53.38	–3.00	–5.32	24	0.44	0.82	63.00	36.44
	COMMUNICATIONS											
NYS	AT&T	(H)	T	51.50	53.50	2.00	3.88	19	1.32	2.47	55.25	36.63
NYS	BellSouth Corp.		BLS	52.13	52.75	0.63	1.20	16	2.76	5.23	55.50	43.38
OTC	MCI	(H)	MCIC	41.25	39.88	–1.38	–3.33	18	0.10	0.25	43.38	29.50
NYS	Northern Telecom		NT	40.88	42.50	1.63	3.98	20	0.36	0.85	49.25	30.50
NYS	Pacific Telesis	(H)	PAC	43.38	46.63	3.25	7.49	16	2.16	4.63	47.88	36.88

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES	15
DECLINES	17
UNCHANGED	0
NEW HIGHS	13
NEW LOWS	3

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER	Adobe	$ 7.63
LARGEST DOLLAR LOSER	Dell	$ –7.13
LARGEST PERCENTAGE GAINER	Software Publishing	35.14 %
LARGEST PERCENTAGE LOSER	AST Research	–21.35 %

	CLOSE 01/11/93	CLOSE 02/05/93	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	4020.09	4083.40	63.31	1.57
DOW JONES INDUSTRIAL AVERAGE	3262.75	3442.14	179.39	5.50
STANDARD & POOR'S 500 STOCK INDE	430.95	448.93	17.98	4.17
N.Y.S.E. COMPOSITE	237.09	247.60	10.51	4.43
NASDAQ COMPOSITE	682.40	700.98	18.58	2.72

CLOSING QUOTES FOR GRAPH:		
DATE	MICRO TIMES	DOW JONES
07/02/92	3182.43	3330.29
07/31/92	3367.19	3393.78
08/28/92	3198.48	3267.61
09/25/92	3313.28	3250.32
10/23/92	3536.03	3207.64
12/10/92	3825.83	3312.19
01/11/93	4020.09	3262.75
02/05/93	4083.40	3442.14

Copyright Nordby International, Inc. Louisville, CO

This information is based on sources believed to be reliable, and while extensive efforts are made to assure its accuracy, no guarantees can be made. Nordby International and Microtimes assume no liability for any inaccuracies. For phone numbers, addresses or any additional financial information on any of the above companies call Nordby International at (303) 666–5903.

Public Access To Public Records – Part II

These Columns Concern The Realistic Near Future.

BY JIM WARREN

REALIZABLE FANTASIES

This one continues a review of issues surrounding citizen access to one of the most valuable of taxpayers' assets—computerized information held by government agencies. Though this references the California Public Records Act (CPRA), the issues are equally applicable to any local, state, or federal agency in a democratic society.

PRIVATE DATA COMMINGLED IN PUBLIC RECORDS

Citizens are increasingly concerned about government's compiling of personal information about themselves, and confidential information about their businesses. In California, the state constitution prominently includes a strong privacy assurance.

These privacy concerns apply equally to paper records and computerized records. However, computerized record-keeping can often protect—or endanger—privacy more than is possible with paper records.

In paper records, private information must be identified and deleted from a copy before its public components can properly be disclosed. In computerized records that commingle public with private data, it is usually straightforward to design data retrieval so that it provides the public components while protecting private data.

> **Some wish to provide copies of computerized public-records files *only* to a few, selected private corporations for semi-monopoly resale at high profit —profit far in excess of what they could gouge if files were available for the same price to all buyers.**

NOT JUST WHAT DATA, BUT ALSO WHAT KINDS OF DATA?

Citizens are often suspicious as to exactly what types of confidential information are being collected by government. Thus, even if the *content* of such protected information is not disclosed, its *existence* and generic description *should* be disclosed as part of any public records statute. Similarly, the existence and description of most government databases should be public. This was the intent of the Privacy Act of 1974 requirement that most federal databases be disclosed in the *Federal Register*—though still ignored by about a third of federal databases sixteen years later (*Computers and Privacy*, GAO, August, 1990).

Copyright © 1993 by Jim Warren, 345 Swett Rd., Woodside, CA 94062; email/ jwarren@well.sf.ca.us. Permission herewith granted to copy-in-full for any non-profit use.

SOFTWARE TO ACCESS PUBLIC DATA

Many government databases are custom-programmed by the record-holding agency or some cooperating agency. Although such software is created at public/taxpayer expense, the CPRA declares that, "Computer software developed by a state or local agency is not itself a public record under this chapter. The agency may sell, lease, or license the software for commercial or noncommercial use." [§6254.9(a)]

In other cases, the records are computerized using commercial software that may cost hundreds, even many thousands of dollars—especially true of some mapping and geographic information systems (GIS).

In the worst cases, government records are computerized using software customized by a private vendor *who retains exclusive proprietary control over the software*—and thus, in several ways, controls access to the data. Aside from creating public-access problems, this is a stupidly dangerous position for an agency to get into.

However, most programs include capabilities for outputting data in one or several more-or-less "standard" formats that can, in turn, be input to most other similar programs—text processors, desktop publishing programs, computer-aided drafting (CAD) systems, GIS systems, database management systems (DBMS), etc.

Citizens *should* be able to obtain copies of computerized public records in any machine-readable form that the agency's computer system can produce by operator command. If an agency cannot provide copies of public records in a customary data-exchange format, then it should provide a copy of the programs needed to access the public data, though they should not be expected to provide technical support or assistance.

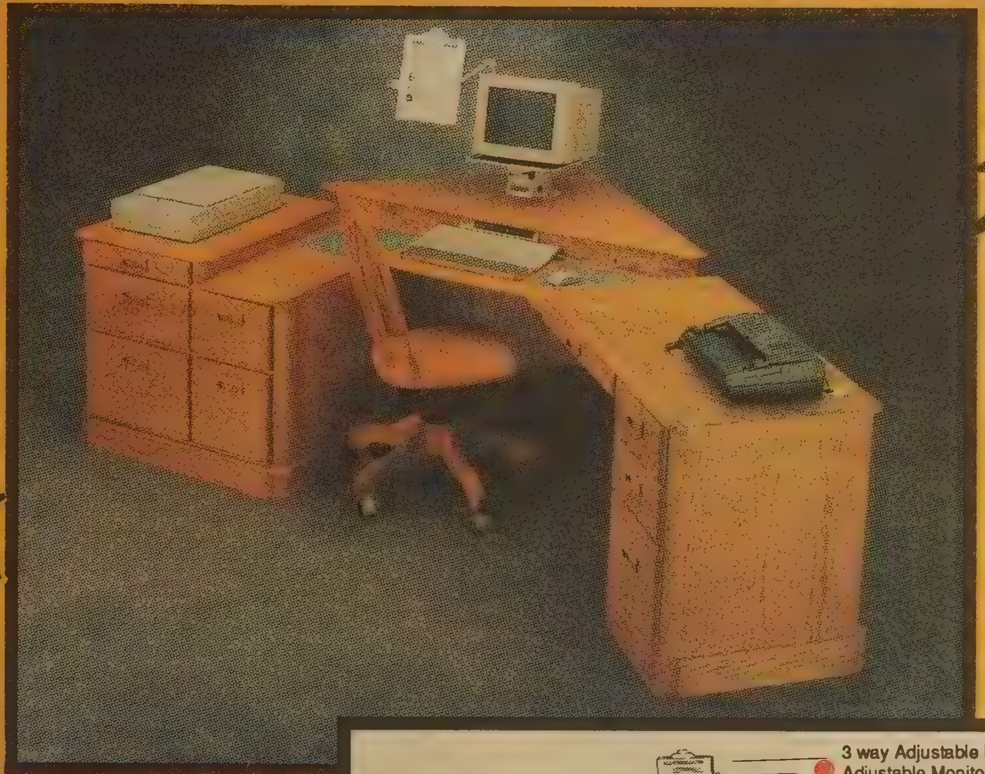
If an agency chooses to use proprietary computer programs to process its public records, it should require the vendor of such programs to include the ability to output records—including all links

THE POWER DESK

NEW DESK from WINNERS ONLY INC.

The Next Generation desk from the premier desk manufacturer - Winners Only. A compact and versatile work station for home or office. Stop in and see it today!

DESK PHOTO



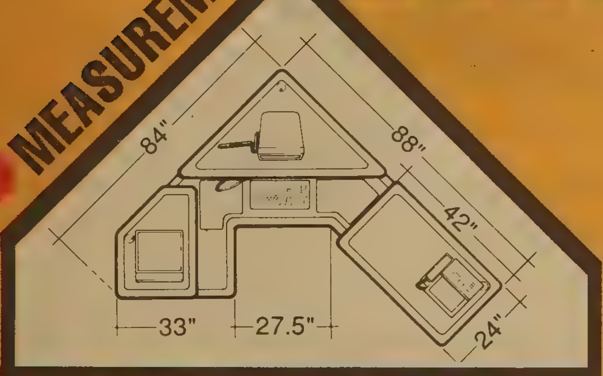
POWER UP

NEW!

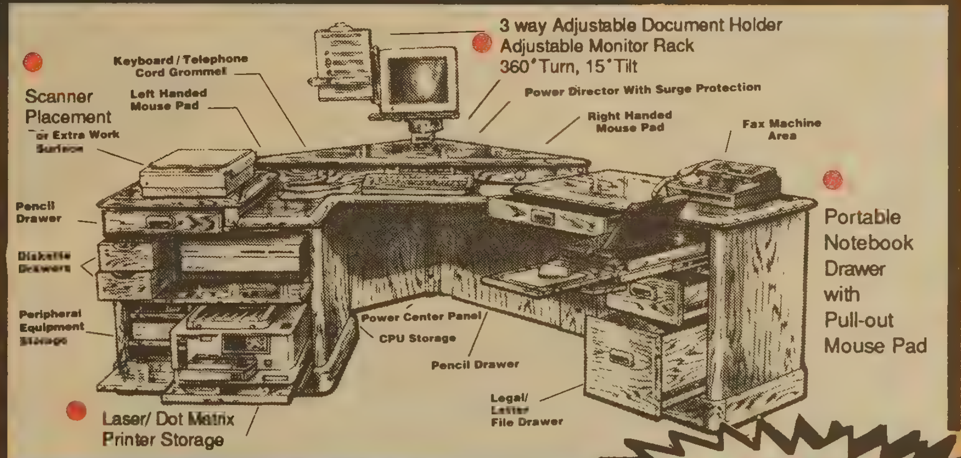
5 TELEPHONE JACKS
10 POWER OUTLETS
(built into the desk!)

Power up with the new Power Desk. It simplifies computer furniture and gives you an efficient and great looking work station. At participating dealers today-hurry in!

MEASUREMENTS


84"
88"
42"
33"
27.5"
24"

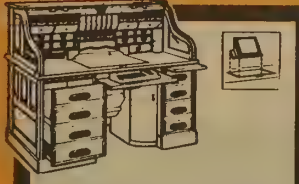
FEATURES


Scanner Placement or Extra Work Surface
Keyboard / Telephone Cord Grommel
Left Handed Mouse Pad
3 way Adjustable Document Holder
Adjustable Monitor Rack
360° Turn, 15° Tilt
Power Director With Surge Protection
Right Handed Mouse Pad
Fax Machine Area
Pencil Drawer
Diskette Drawers
Peripheral Equipment Storage
Power Center Panel
CPU Storage
Pencil Drawer
Legal/ Letter File Drawer
Portable Notebook Drawer with Pull-out Mouse Pad
Laser/ Dot Matrix Printer Storage

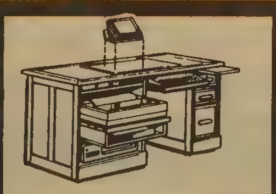
WOW

OR... The Power Desk measures up in quality and design. Try it out today at your nearest Winners Only dealer. We're sure you'll think it's great too!

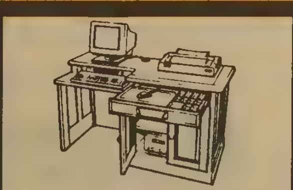
CHECK OUT OUR WHOLE LINE OF OAK COMPUTER DESKS.



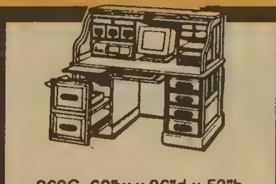
762 CR 62"w x 33"d x 51"h executive rolltop - recessed monitor



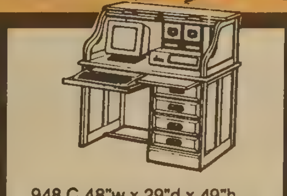
760 CD 60"w x 30"d x 30"h recessed monitor



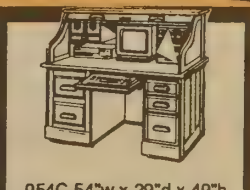
949 CS 51"w x 24"d x 29"h computer workstation



960C 60"w x 36"d x 52"h deluxe - solid oak raised panels all around



948 C 48"w x 29"d x 49"h locking tambour - 14" monitor viewing



954C 54"w x 29"d x 49"h locking tambour - printer drawer

DEALERS

"HOOT" JUDKINS, INC.
FINISHED WOOD FURNITURE
REDWOOD CITY
1269 Veterans Blvd. • 367-8181
SAN FRANCISCO
1142 Sutter St. • 673-5454

OAK WAREHOUSE
NOBODY BEATS US ON PRICE, SELECTION OR SERVICE... NOBODY!
267-0700
SAN JOSE • 5041 Almaden Expy.

DI$COUNT OAK
730-1658
ABSOLUTELY THE BEST PRICES IN THE BAY AREA
SUNNYVALE • 201 W. El Camino Real

FOWLER'S
ALL WOOD FURNITURE
Quality For Less Since 1967
FINISHED • UNFINISHED
WALNUT CREEK
2940 North Main St. • 939-5558
ANTIOCH/PITTSBURG
2685 East Leland • 439-WOOD

THE POWER DESK

◆ MACINTOSH AND PC COMPATIBLE ◆

"An Unbeatable Combination of Price and Performance"

MacWEEK
1/20/92

NEW LOW PRICE!

Just $995

If you've been waiting for just the right combination of speed, PostScript® compatibility and price to buy a new laser printer, wait no more! Now the LX-29000™ from the Printer Works is just $995!

✔ Very fast with Microsoft's Windows 3.1!

Thanks to a powerful AMD 29000 32-bit RISC processor and the ability to rasterize TrueType fonts in native mode, the LX-29000 is a dazzlingly fast performer with Microsoft's Windows 3.1.

✔ PostScript® & HP LaserJet compatible!

The LX-29000 comes with 35 typefaces and uses Microsoft's TrueImage for full compatibility with PostScript, the professional standard for graphics and typesetting. It accepts Adobe Type 1 and 3 fonts as well as TrueType fonts. It works great with Windows 3.X, Apple System 7 and all Mac and PC software that supports PostScript or TrueImage printing. And its HP emulation easily handles non-PostScript printing.

✔ Uses Canon's dependable LX engine

The LX-29000 uses the same lightweight, small-footprint, 300 dpi, 4 ppm Canon LX engine used by HP, Apple and QMS, so supplies and service are never a problem. And Canon's patented all-in-one cartridge eliminates all that toner mess!

✔ For PC, Mac and Others!

Prints from your IBM PC or Macintosh via Centronics, RS-232C or AppleTalk interfaces. Interface selection is automatic. The LX-29000 comes with 2 megabytes RAM, a universal paper tray and a toner cartridge.

✔ Printers are our business!

We've been in business since 1982, so you can be assured that we know printers. Our prices are lower than most because we sell directly to you—no middleman! We offer a full 30-day money-back guarantee, a one year warranty on all parts and labor, plus free phone support.

PC World said "...the LX-29000 delivers graphics quickly, finishing first on our PageMaker and Excel tests."

Publish magazine said "Not only does this direct-mail printer carry the smallest price tag of the six printers we tested, but we found that it prints the cleanest text as well as sharp, smooth graphics."

MicroTimes said "...(If you are) searching for a 'faster! better! cheaper!' laser printer...examine this printer"

Postscript Printer Comparison Chart

	Engine	RISC Processor	Simultaneous Interfaces	Universal Paper Tray	Money Back Guarantee	Street Price	Price Difference
LX-29000	Canon	YES	YES	YES	YES	$995	
NEC Model 95	Minolta	NO	YES	YES	NO	$1,450	$455
QMS-PS 410	Canon	NO	YES	YES	NO	$1,480	$485
HP IIIp w/Postscript	Canon	NO	NO	YES	NO	$1,589	$594
Apple Personal NTR	Canon	YES	YES	YES	NO	$1,679	$684
IBM 4029/8P	Lexmark	NO	NO	NO	NO	$1,695	$700

ORDER TOLL FREE
1-800-225-6116

30 DAY MONEY BACK GUARANTEE

the PRINTER WORKS

3481 Arden Road, Hayward, California 94545 between data components—in a fully documented, nonproprietary format that does not require the vendor's computer programs for further processing. Agencies should do so for their own protection, as well as for public access.

CALCULATING COPYING COSTS FOR PUBLIC RECORDS

To recoup the expense of copying requested public records, agencies may charge "fees covering direct costs of duplication, or a statutory fee, if applicable" [CPRA §6257, in part]. However, some agencies are treating public records "sales" as income centers, charging far in excess of actual incremental copying costs. For such bureaucrats, "direct costs" needs clarification.

> **Some funds-hungry bureaucrats rationalize their public-records profiteering by saying such records are "public assets" that can't simply be "given" away—like land, buildings or equipment.**

> **They carefully ignore the fact that physical assets cannot be "copied" for trivial cost.**

Agencies are not *required* to charge for copying public records. However, if they do, it should be no more than the fee the agency would internally charge to one of its departments or sections. It should be the *lowest* rate it charges its own departments, and what it charges, say, the Governor's office or a state legislative committee.

Also, requesters should be permitted to provide recording media—e.g., preformatted disks, or magnetic tape—to avoid agency charges for such media.

PROFITABLE PUBLIC RECORDS FOR LOOT-SEEKING BUREAUCRATS

Some funds-hungry bureaucrats rationalize their public-records profiteering by saying such records are "public assets" that can't simply be "given" away—like land, buildings, or equipment. They carefully ignore the fact that physical assets cannot be "copied" for trivial cost.

If this trend continues, access to public records may become very costly over the next few years, as most records become computerized.

Some bureaucrats say that the CPRA applies only to copies of *single* public records; that they can charge whatever the market will bear for *files* of public records in useful (computerized) form. They say private companies might profit from using such files; therefore (?) their agencies should get a cut of the action (my words; they are more diplomatic).

Worse still, some wish to provide copies of computerized public-records files *only* to a few, selected private corporations for semi-monopoly resale at high profit—profit far in excess of what they could gouge if files were available for the same price to all buyers. Some federal agencies are even paying for-profit information companies huge fees to access their *own* public records!

There is rarely dispensation for nonprofit organizations. (Voter registration files provided to established political parties without cost are an exception.)

Such profiting from public information is contrary to many traditions—and proposed legislation—regarding public data. E.g. the entire US Government Code is available from the GPO (Government Printing Office) on a CD-ROM for about $40.

Public records traditions focus on *public* access, not access limited to those who can afford high-profit fees.

Additionally, it sets dangerous precedent to have government demanding something under penalty of law—in this case, information—and then selling it for more than it costs to reproduce.

MONITORING THE PUBLIC'S BUSINESS

In perhaps *most* cases, access to *aggregations* of public records on a given topic is much more valuable in reviewing the conduct of the people's business than is access to a few individual records, copied one at a time. Evaluating norms, trends, fair application of policies, etc.—and much, much more—all depend on access to, and analysis of, aggregated records; one-at-a-time access is virtually useless.

Aggregated public records should be as available as *individual* public records, and should be equally available to anyone; no special treatment for information profiteers.

ACCESS FOR THE COMPUTER-IMPAIRED

Like transportation at the turn of the century, computers are presently in a brief era when many citizens still cannot "drive" them. As with horseless carriages, many curse computers; some even fear them. Until average citizens are comfy with computers, accommodations for the computer-illiterate are necessary when public records are computerized.

When public data is stored in a central computer and retrieved via terminals, there should be terminals to which the public has access, and access delays should be no worse than if the records were stored and retrieved without computers.

In the case of records stored on small computers, paper copies and machine-readable copies on diskettes or other customary computer storage media should be readily available upon request. ■

Warren founded InfoWorld, Wireless Digital, Initiative, Inc. and one of the nation's largest public microcomputer conventions. He was founding host of PBS's Computer Chronicles, *founding editor of Dr. Dobb's Journal, and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics & statistics. He has been a computer professional since 1968, and was a mathematics teacher and professor for ten years before that.*

He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991), sponsored by a dozen nonprofit civic, professional, and industry organizations, and received one of the first Electronic Frontier Foundation Pioneer Awards (1992). He is a member of the board of directors of Autodesk, Inc., and also chairs the Communications Committee of the California Public Records Act Reform Coalition.

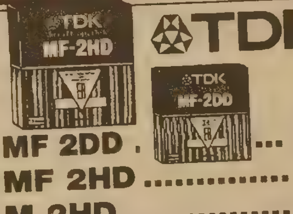
"Consistently Low Prices... Staffed by True Afficionados"

Susan Stefanac
S.F. Focus Jan. '93

BEST • OF • THE
1992
EAST • BAY

Uncle Ralph's

10 Years of Excellence



TDK

Box of 10

MF 2DD	$5.99
MF 2HD	$9.99
M 2HD	$7.99

0% Financing Up to $2500

You can defer payment for 90 days and pay no interest at all. Or you can charge it to your Uncle Ralph's credit card account. Sometimes we even take cash! Credit subject to lender approval.

Same Day Repair Service, 7 Days a Week!

If you have a problem with one of our computers we can usually have it fixed while you wait. We have an excellent technical support staff that's dedicated to keeping you happy.

Lowest Prices... Guaranteed!

When you buy at Uncle Ralph's, you get our lowest price gaurantee. If you find it for less at another local dealer we'll match that price, now or up to 30 days after you buy! We'll even give you an extra 10% of the difference for your trouble.

Satisfaction Guaranteed

If you have equipment problems, or just need advice, we're here to help. And if you're not satisfied with your purchase, we have a 10 day refund/ 30 day exchange policy. (Does not apply to laser printers after toner has been added.)

Helpful Advice...

Before you buy we'll take the time to help you choose what's right for you. We have an excellent selection and a knowledgable staff that make it easy for you to make the right decision.

Lifetime Labor Warranty on Uncle Ralph's Brand Computers

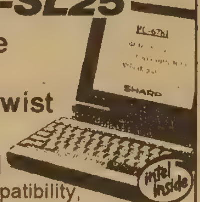
We design our computers to last forever. All parts on Uncle Ralph's Brand computers are covered for one year and our labor is guaranteed for life.

SUPER NOTEBOOKS!

MiTAC 386-SL20 Notebook

- 80 MB Hard Drive
- 2 MB RAM • VGA Screen

$1299 $65 Month

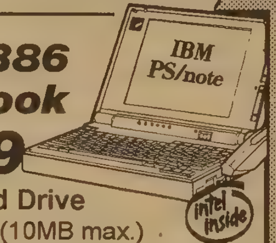


Sharp 386-SL25

- 80 MB Hard Drive
- 4 MB RAM
- 10" Triple Supertwist VGA Display
- Built-In Trackball

...Plus PCMCIA Slot Compatibility, 126k Cache and up to 3 hours battery life. The RAM is upgradeable to 8MB and it weighs only 4.9 lbs.

SHARP **$1599** $80 Month

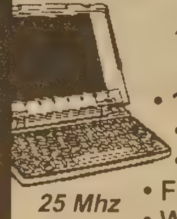


IBM 386 Notebook

$1999

- 85 MB Hard Drive
- 2 MB RAM (10MB max.)
- 10" VGA Screen • Trackball
- Internal Fax/Modem plus...

Windows 3.1, DOS 5 and WinFax software. $100 Month



Avanti 486 Notebook

25 Mhz 486-SLC

- 120 MB Hard Drive
- 4 MB RAM
- 6 Hour Battery Life
- Fax Modem • WinFax
- Windows and the best screen and keyboard

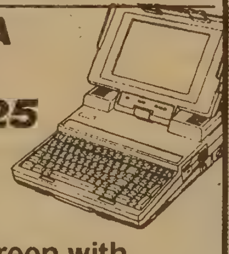
Avanti

$2299 $115 Month

Twinhead SlimNote 486-33

- 4 MB Expandable RAM
- 130 MB Hard Drive
- VGA Screen

$2499 $125 Month

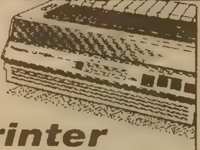


TOSHIBA Color 386 SX-25

- 120 MB Hard Drive
- 4 MB RAM
- 9.5" Color Screen with 16 to 256 colors

$2549 $127 Month

PRINTERS



Panasonic 24 Pin Letter Quality Printer

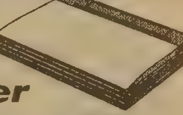
Panasonic Office Automation OA

Proven workhorse prints up to 240 CPS with beautiful text & graphic. 5 built-in fonts and *2 Year Warranty*

$227 KXT 1123

Panasonic Near Letter Quality

Our most popular printer KXT1180i **$168**



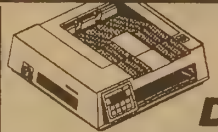
brother Portable Ink Jet Printer

Perfect Laptop Accessory **$297**

Canon Bubblejet Printer

Letter Quality Printer

360 dpi, 13 Resident fonts & more great features **$369**



OKIDATA Desktop LED Printer

This laser quality 300 dpi printer has crisp blacks and publication quality output. HP Series II compatible, with standard typefaces/fonts and a slim, low-profile design. $30 Month **$599**

Postscript LED Page Printer

Postscript printing for high quality output. Adobe postscript and HP emulations, 8 ppm for high productivity plus dual, 200 sheet paper tray. 2MB to 4MB of memory for full page graphics. Optional Appletalk/Serial Interface.

$1299 $65 Month

FAX MACHINES

BellSouth Products FAX Phone Machine

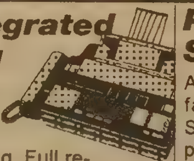
Halftones for excellent photographic transmission; plus fax/phone switch

$249.95 Financing Available

SHARP FAX/Phone Machine

Fax machine, phone combo. 10 page document feeder and 15# memory, automatic FAX/phone switching and grey scale for halftones.

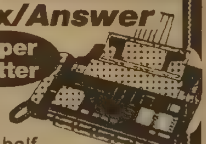
Financing Available **$299.95**



Panasonic Integrated Fax/Answering System

Integrated fax/answering machine system with automatic phone/fax switching. Full remote control answering machine with digital chip OGM. Fax section includes 10 page document feeder.

Panasonic **$389.95**



Panasonic Fax/Answer System

Paper Cutter

Automatic fax/phone switching. Send features include 10 page document feeder, halftones and sequential broadcasting. Answer machine features are Panasonic's finests

Panasonic **$549.95** $25 Month

2569 Telegraph Ave. Berkeley
5 blocks south of U.C.
(510) 841-5280
FAX NUMBER: 841-4743
Open 7 days: Mon.-Sat.10:30-7, Sun 12-5
Items limited to stock on-hand & subject to prior sale.
Ad expires 3-16-93. © Uncle Ralph's, 1993

Free Parking

Uncle Ralph's

Your Uncle in the Business!

Uncle Ralph's Credit

- **Low Monthly Payments**
- **Approval Usually within Minutes**

Subject to lender approval. Monthly payments subject to interest surcharge. Minimum monthly payment per account is $20. Down payment may be required. Interest payments based on 24 months O.A.C. Based on 21% A.P.R

Uncle Ralph's

Monitors

Standard Technology
Super VGA, 1024 x 768 Resolution, .39 Dot Pitch
$249

Touch Super VGA
1024 x 768 Resolution, .28 Dot Pitch
$299

Packard Bell Non-Interlaced Low Radiation Super VGA
1024 x 768
$369

Magnavox MagnaScan 17"
- 1280 x 1024
- Non-Interlace

$849

Hard Drives

Conner • Maxtor Western Digital

80MB	$219
130 MB	$269
213 MB	$369

Mice

Microsoft Compatible 3 Button Mouse	$19.69
PCA Joystick	$19.69
PCA Trackball	$49.69
Logitec MouseMan	$79.69

Fax/Modems

2400 Baud Modem	$49.69
AMS 96/24 Fax/Modem	$79.69
AMS Pocket Fax/Modem 9600 Baud Modem/2400 Baud Fax	$117.69
Big Mouth Voice Mail Put your old PC to work.	$177.69
US Robotics Fax/Modem 9600 Baud - Internal	$299.69
Supra 14.4 Data/Fax Modem Internal	$347.69

About Uncle Ralph's Computers...

All of our computers include a written money back satisfaction guarantee. Except for special ordered parts, there are no restocking fees.

All of our systems are FCC Certified so you won't have to worry about interferring with your neighbor's reception.

All software includes manuals and can be registered for manufacturer's support.

Our 386 and 486 systems include a sharp .28 dot pitch SVGA monitor. Less expensive monitors are available.

All systems include keyboard, two serial, parallel and game ports.

Systems are usually available for immediate delivery.

There is no extra charge for credit card purchases.

If one of our computers needs service and we can't have it ready the same day, we'll give you a loaner (unless you bring it in really late in the day).

Good Questions to Ask Before You Buy a Computer...

Is the system FCC B Certified so you don't have to worry about interfering with your neighbors' TV and radio reception?

How long will you have to wait if your computer needs service? Will you have to wait for parts?

Is the system you want to purchase available immediately or will you have to wait for it to be assembled?

If a deposit is required, is it refundable?

Is the store's satisfaction and refund policy in writing? Is there a restocking fee?

Are you getting legal copies of DOS and Windows, or is there an extra charge for manuals?

Is there an extra charge for features which most stores include free?

Is there an extra charge for credit card purchases?

PACKARD BELL®
America grew up listening to us. It still does.

486-SX Legend 605

- 85MB Hard Drive
- 2MB RAM
- VGA Color Monitor
- MS DOS 5
- Windows 3.1

...plus Prodigy Start-Up Kit, MS Works for Windows, MS Money & Entertainment Pack.

One Year On-Site Warranty

$1199
$60 Month

Not affiliated with any other Bell System entity. The Intel inside logo is a trademark of Intel Corp.

IBM

486-SX PS/1

Super VGA Color

4MB RAM
129MB Hard Drive
- Super VGA Color Monitor
- Modem • Mouse • Windows 3.1
- DOS 5.0 • Prodigy

Plus: Works for Windows, Quicken for Windows, Virus Check and More!

$1599
$80 Month

Super Systems at Super Savings

386-40

Hi-Performance System

Ready Today

- 174MB Hard Drive
- 4MB RAM
- Super VGA .28DP Monitor & 1MB SVGA Card
- 2 Floppy Drives
- Windows 3.1 & MS-DOS 5.0

Plus... space saving mini-tower case; 2 serial, 1 parallel, 1 game port; enhanced keyboard and more!

$1349
$67 Month

486-33

Our Most Popular 486

- 174MB Hard Drive
- 4MB RAM
- Super VGA .28DP Monitor & 1MB SVGA Card
- 2 Floppy Drives
- 256k Static RAM Cache
- Windows 3.1 & MS-DOS 5.0

Plus... Mini-tower case; 2 serial, 1 parallel, 1 game port; enhanced keyboard and

Available Today!

$1799
$90 Month

Includes Uncle Ralph's Lifetime Labor Warranty

Super 486 Systems at Super Savings

486-DX33

VESA Local Bus System

Mega-Power

- 174 MB Hard Drive
- 4MB RAM
- Genoa VESA Local Bus Accelerator Board 1MB, 24 Bit, 16.8 Million Colors
- AMI Bios • 256k RAM Cache

Plus... .28DP SVGA Hi-Resolution Monitor
- 2 Floppy Drives • Windows 3.1 & DOS 5.0

33MHz	DX-2 66MHz
$1949	$2299

Available Today

Windows Accelerator System

486-50

- 250 MB Hard Drive
- 8MB RAM
- 256k Static RAM Cache
- 2 Floppy Drives
- Non-Interlaced Super VGA Monitor
- Paradise 1 MB VGA Accelerator Card Plus...MS Windows 3.1 & DOS 5.0

$2299
$125 Month

Includes Uncle Ralph's Lifetime Labor Warranty

Available Today

Copyright Infringement Goes BIG Time

And Now You Can Get Big Time For Doing It...

BY ROBERT A. SPANNER, ESQ.

For almost a decade the laws against copying software have been honored more in the breach than the observance. Despite the best efforts of software companies and their trade associations to prevent it, everybody copied software without thinking too much about it. People traded software with their friends, made extra backup copies, duplicated copies for common office use, etc. It was like using recreational drugs: maybe it was illegal, but everyone was doing it.

Up to now, copyright infringement has not been prosecuted because it was only a misdemeanor, and US Attorney's offices around the country had better things to do than to chase otherwise law-abiding citizens around trying to prove a complicated copyright infringement case that had only minimal penalties. As a practical matter criminal copyright infringement laws were not being prosecuted, period.

Now that's all about to change.

A couple months ago Congress, in its infinite wisdom, vastly expanded the scope of criminal copyright infringement, and then turned it into a felony offense, punishable by five years in prison. What this will do is make copyright infringement a lot easier for prosecutors to prove, while at the same time giving prosecutors a big motivation to pursue such cases for the first time. The same thing happened in 1982 when Congress made volume copying of records and movies a felony, and Federal prosecutors started taking down distributors of pirated records and tapes in a big way.

But this doesn't mean that only distributors of pirated software are at risk, because Congress also reduced the volume copying threshold to almost nothing. Copying a mere ten copies with an aggregate retail value of $2500 in a six-month period is now a felony—and it doesn't even have to be ten copies of the same software.

Companies are even more at risk. Prosecutors have always taken the position that companies "know" what their employees know, so there is the risk that companies will be indicted because all of their employees in the aggregate have illicitly made ten copies of software. One would suspect that there are few companies of any size that do *not* have ten illicit copies of software somewhere within the company.

The law may also affect the competitive zeal of newcomers to an established software market. It is often necessary to develop software that is compatible with existing software, or which works the same way as an established product. The development process requires making copies of the competitor's software. That process may now result in a felony indictment, although the risk of that is much less in California because of recent court decisions approving of reverse engineering. However, the issue of interface compatibility (the "look and feel" problem) in the final product is anything but resolved. Accordingly, a company can get indicted—not just sued—for making its software products too similar to those of a competitor, and the new felony provisions of the law give these cases much higher priority and afford prosecutors a considerably greater motivation to take the trouble to indict such cases.

It is safe to say that an indictment would probably be sufficient to put a young company out of business during the pendency of a case, whether the company was ultimately acquitted or not. Brilliant industrial policy this is not.

We have as a society completely forgotten the notion that the punishment should fit the offense. A criminal penalty of five years in a federal penitentiary for making ten copies of various items of software with a retail value of only $2500 is in the same league with hanging paupers for stealing a loaf of bread as the British did in the early 1800s. This is not progress. ■

Copyright © 1993 by Robert A. Spanner. All rights reserved. Robert A. Spanner is a lawyer in Palo Alto. He specializes in civil and criminal technology litigation and white collar criminal defense. A graduate of Stanford University and Stanford Law School, he has written a treatise and a number of articles on technology law.

"A Touch for the Future"

ACR has been helping customers like you since 1981 select a custom configured system designed to fit your needs composed of the newest & finest technology.

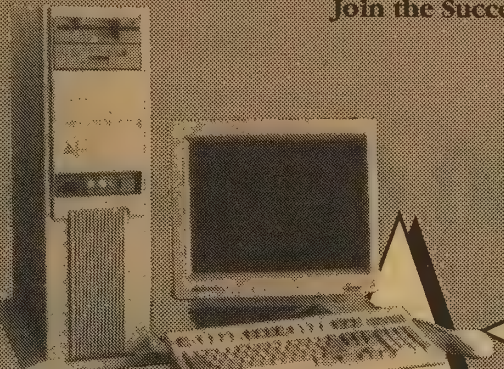
For 12 years we have been selling to successful customers such as Intel, IBM, AMD, HP, Panapacific, John Hawkins, Lockheed, Stanford, NASA, Pac-Tel, Japan and much more!
Join the Success and let us serve you!

当社は、ここシリコンバレーにて、１０年にわたるＰＣ関係の販売実績を持っております。そして、その顧客にはＩＮＴＥＬ、ＳＣＯ、等の優良企業が多数あり、ＭＳ－ＤＯＳをはじめＮＥＴＷＡＲＥ、ＯＳ／２、ＵＮＩＸ等、各種ソフトウェアの経験も豊富でります。私どもは日本の皆様に対して、ほとんどのクレジットカードをお取り扱いしております。そして、その距離的なことを考え合わせ、責任の持てる高品質な製品しか販売しておりません。しかし、万一部品保証期間中に故障が発生した場合、その部品を送り返して頂ければ、米国からの返納送料は当社にて負担致します。

部品保証期間　１年間（ハードデスク等の特定部品では、メーカーから５年間の保証期間が提供されているものがありますが、それはそのまま当社から皆様に対する保証期間となります。）

人件費保証期間　５年間（電話、ＦＡＸによる、技術サポートも含みます。）

日本へは空輸業者と専属契約を結んでおり、輸送時の保険も含め１６５ドルでシステム一式（本体、モニター、資料等）を発送しております。（尚、東京、大阪、等の最寄りの空港から最終目的地までの輸送費は、この金額には含まれておりませんので、お客様負担になります。）



Why should you buy from ACR?

- ♦ Lowest prices for the highest quality product.
- ♦ 2 Yrs. parts, 5 yrs labor on the Elite 6 Layer Motherboard.
- ♦ Same day service for repairs (in most cases).
- ♦ System supports DOS (others do not), UNIX, XENIX, Windows NT.

Confused with what to buy?
"FREE" Consultation
Just Call!

486/33/64K
$1199
(Call for EISA)

486/50/64K
$1510
(Call for EISA)

386/33/40/64K
$1070

486/33/256K
2 VESA/3 EISA SLOTS
Local Bus
$1510

SPECIAL DEAL
486/33/128K
VESA
$1380

SYSTEM CONFIGURATION

- ♦ Add $50 for 256K Cache
- ♦ 4 MB RAM (Add $120 per 4 MB)
- ♦ 3.5" and 5.25" Teac Floppies
- ♦ 120 MB Hard Drive (add $130 for 212 MB)
- ♦ 2H/2F IDE Control Card
- ♦ 1 Par/2 Ser/1 Game Ports
- ♦ 14" SVGA Monitor
- ♦ 1 MB SVGA Card
- ♦ 101 Enhanced Keyboard
- ♦ Case & Power Supply

COOLER FALLING PRICES!

WE WILL MATCH OR BEAT ANY WRITTEN QUOTE PRICE!

HARD DRIVES & CONTROLLERS

(IDE) Maxtor 80MB/17ms	$CALL
(IDE) WD 130/14ms	260
(IDE) Quantum 170MB	360
Western Digital 212/13ms	365
(IDE) Max 340/15ms	CALL
(IDE) Max 130MB/15ms	CALL
(SCSI) Max 130MB/15ms	CALL
(SCSI) Quantum 240MB/15ms	CALL
(SCSI) Fujitsu 330/520/12ms	CALL
(SCSI) Max 1.2GB/13ms	CALL
(SCSI) Future Domain	59
(SCSI) Adaptec 1542B w/Kit	259
VESA Controller I/O	65

OPERATING SYSTEM & MICE

MS DOS 5.0	$40	3 Button	$17
Windows 3.1	45	Logitech First	38
OS/2 2.0	135	Kensington Exp	95
(SCO, PROXIMA, ESIX, SUNSOFT)		Logitech Mouseman	65
		MS Ser/Bus	65/85

MONITOR & VIDEO UPGRADE

ViewSonic 4E/6/5+	$70/139/310
Sony 1304S/1604S	350/739
NEC 3FG/4FG	439/539
Nanao 9080i/F550i	739/839
ViewSonic 7/8	839/1239
NEC 5FG/6FG	1120/2675
Sony 1936	2239
Orchid Pro II w/HS	75/85
Diamond Speed Star w/HS	89/99
Genoa VESA	75
Diamond Stealth/Speedstar 24X	160/130
ATI Vantage/Ultra (w/Mouse)	180/240
Sampo AlphaScan 14"	180

MODEMS

2400 Baud	$32
9600/2400 FAX	56
Intel Satis 96/14.4 FAX	CALL
US Robot 96/14.4 FAX	CALL

KEYBOARDS

ST 101 Keyboard	$25
MaxiSw/Keytronic	30/36
Focus 2001/5001	40/68
Omni 101/102/Ultra	68/68/98

SOUND CARDS

ATI Sound Pro	$148
Sound Blaster/Pro	90/160
Adlib Pro 16	230

PRINTERS

Panasonic 1124	$280
Epson LQ 570	270
Panasonic 1624	335
HP 500, 500C	CALL
HP IIP+	CALL
HP IIP, III	CALL
HP IV	CALL

CD ROM/TAPE BACK-UP

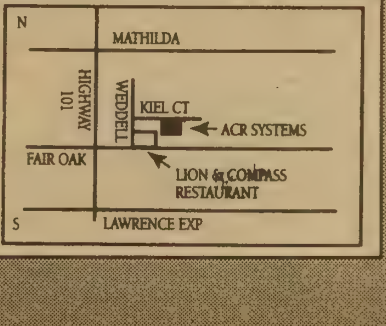
Sony 535/541	$CALL
NEC 74/84	CALL
Color 120/250	186/236
Archiv 250(2153)	469

ACR SYSTEMS
1038 Kiel Ct.
Sunnyvale, CA 94089

(408) 734-9795
Fax: (408) 734-9798

Mon-Fri 9am-6pm Saturday 10am-5pm

Prices subject to change without notice.



BUSINESS SOLUTIONS

The GRiD 2260 Convertible

Plus: EO, GEOS, General Magic, And More...

BY MITSU HADEISHI

Pen-based technology is still in its infancy; products aimed at the consumer market, though they continually threaten to arrive at any moment, have not yet appeared on a mass scale.

In lieu of this, I finally decided to take a look at a real, shipping pen-based machine, in this case the GRiD 2260 Convertible, a dual-purpose "convertible" laptop/pentop computer. Admittedly, this computer is priced a bit high for the consumer market ($3495) if it were a pure pen-based machine; however, the machine doubles as a conventional laptop by simply flipping the screen up (a very clever feature).

PENS AND PALMTOPS

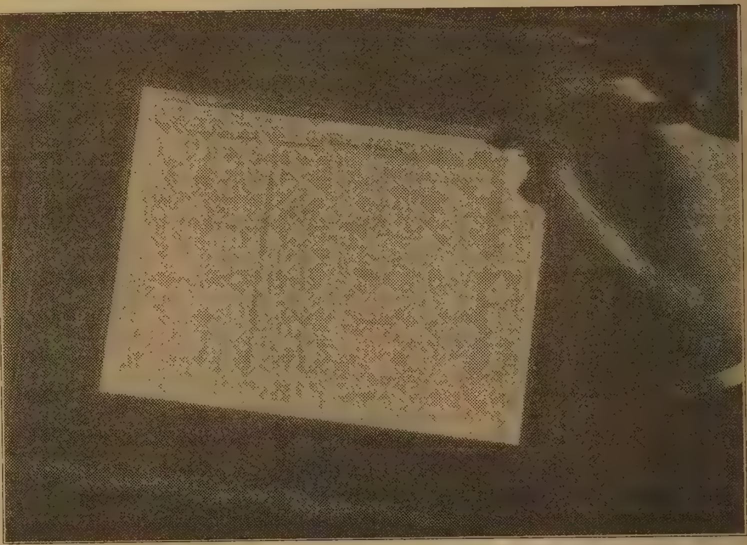
The Convertible is representative of the current state of the art in pen-based computers, and many of the newer machines will use operating systems that currently run on these larger, higher-priced machines. For example, the "personal communicators" which will be created by companies such EO, Apple, Sony, Motorola, AT&T, and others (see below re: General Magic), will use pen-based operating systems such as PenPoint, Windows for Pens, and others, some of which are currently running on existing pen-based hardware such as the GRiD.

So let's take a look at the current state of the art.

THE GRID 2260

As shipped for review, the GRiD 2260 comes with a 25MHz 386SL processor with a CX87SLC numeric coprocessor, 4MB of RAM, a 130MB hard disk, a built-in internal 9624 fax modem (9600 baud fax, 2400 baud data), an external 3.5" floppy disk drive, and Microsoft Windows for Pens. Although it was supposed to come with some review software, it shipped with only the GRiD PenRight! demo; this was, however, sufficient for me to get a sense of the usability of the pen interface.

It comes with an easy-to-read sidelit 64 greyscale LCD display capable of displaying up to 640 x 400 pixels, which allows it to display VGA graphics (in greyscale, of course). The display is readable, although if you look closely there is a bit of an annoying "snow" effect, which makes it look as if certain pixels are fluctuating in brightness. (This doesn't happen over the entire display, I might note, only in areas which are using dither patterns and other non-flat areas of brightness.) It weighs in at 5.5lbs. with the lighter of the two battery packs that can be used with the unit, and measures 9.3" x 11.5" x 1.6".



Shown here in its pen-based mode, the GRiD convertible features a flip-up keyboard.

Interfaces include a 9-pin serial port connector, an external VGA monitor jack, a phone jack (optional, but included in the shipped review unit) for the internal modem, and a parallel/external floppy port. Most notably, the unit ships with a PCMCIA 2.0 slot, allowing you to insert any one of a growing number of PCMCIA 2.0 cards now on the market.

With the standard battery pack, the unit is expected to operate for approximately two hours; with the more expensive (and heavier by 1/2lb.) battery pack, it's supposed to be able to operate slightly longer than three hours (this was not tested for this review).

WINDOWS FOR PENS

There are currently several pen-based operating systems vying for market attention, of which the two most prominent are GO Corporation's PenPoint and Microsoft's Windows for Pens. The GRiD Convertible came loaded with Windows for Pens, so that is the operating system which I will discuss here.

Windows for Pens has the advantage of letting you run any Windows application, even applications that were not originally designed for pen use. Critics of the operating system say that it is a kludge, and that an operating system such as PenPoint, built from the ground up for handwriting input, is better-suited for pen applications. Many reviewers, however, have suggested that both operating systems are currently at reasonably similar levels of functionality.

The pen, of course, takes the place of the mouse, and normal operations you'd perform with a mouse are quite straightforward under Windows for Pens; you can generally click, drag, select menu items, and so forth at least as easily as you can with a mouse. In particular, since the GRiD's screen is not touch-sensitive, but rather requires the use of an electronic stylus, this allows you to rest your hand on the screen as you write without causing the system to get confused. This makes usage of the stylus much easier than touch-screen implementations (such as that in the palmtop organizer reviewed last month, the Sharp OZ-9600).

Use of the pen in Windows for Pens does have a disadvantage relative to a mouse, however. Since you can't assume you have a keyboard, the pen serves two separate functions: a pointing and selecting device, and an input

continued on page 42

RESOURCES:

Apple Newton
Apple Computer, Inc.
(408)996-1010

Business Card 2496c and 2496c+ PCMCIA 2.0 fax modem cards
OmniTel, Inc.
47281 Bayside Pkwy.
Fremont, CA 94538
(510)490-2202

EO Personal Communicator
EO, Inc.
800A East
Middlefield Rd.
Mountain View, CA
94043
(415)903-8100

Copyright © 1993 by Mitsu Hadeishi. All rights reserved.

Libre
Service® Computer Inc.

PERFORMANCE + RELIABILITY
+
SAVE
$
$
+
+
=
12
9
3
6

Multi-media System Kits

386-40 Mhz DX
128K cache; 4 MB;
medium tower + P/S;
IDE 2S, 1P, 1G;
1.2 & 1.44 floppy drives;
120 MB hard drives;
SVGA card 1MB.
Sound Commander Pro w/ speakers;
CD ROM + 4 Titles;
SVGA monitor;
101 keyboard.

Monthly Sale

$1,299

(Motherboard upgradable to 486 DX, SX or DX2)

Local BUS System Kit

486DX-33Mhz 64K Cache;
VESA Standard 4 MB;
Mini-tower case;
IDE 2S, 1P, 1G;
1.2 & 1.44 floppy drives;
120 MB HD;
Local BUS video card;
15" SVGA monitor;
101 KB;

New

Upgrade to 486-50DX Mhz

$1,499 **$1669**

386DX-40MHz
with 128K Cache System Kit

Basic Features:
1 MB standard;
IDE HD/FD Controller;
2 serial, 1 parallel & 1 game ports;
1.2M or 1.44 floppy drive;
101 keyboard;
Mini-tower or desktop case w/ power supply

Best Price

$330

(upgradable to 486 DX, SX or DX2)

Motherboard with CPU

286-12Mhz	$55
286-20Mhz	$70
386SX-25Mhz	$99
386SX-33Mhz	$110
386DX-40Mhz (upgradable to 486)	$175
486SX-25Mhz	$215
486DX-33Mhz	$480
486DX-50Mhz	$630
386/486 128k cache upgradable motherboard w/o CPU	$110

Hard Drives & Floppy Drives

40 MB HD (IDE)	$150
80 MB HD (IDE)	$190
120 MB HD (IDE)	$260
200 MB HD (IDE)	$360
1.2 MB floppy drive	$ 48
1.44 MB floppy drive	$ 46

System Kits

With: 1MB; IDE HD/FD controller; 2 serial, 1 parallel and 1 game ports; 1.2 or 1.44 floppy drive; 101 KB; mini-tower or desktop case with power supply.

286-12 Mhz	$225
386SX-25Mhz	$270
486SX-25Mhz	$390
486DX-33Mhz	$655
486DX-50Mhz	$805

Video Options:

Mono graphic card	$15
SVGA card (800X600)	$25
SVGA card (1280X1024)	$55
Window Accelerator Card	$70
VGA monitor (640X480)	$205
SVGA monitor .28mm	$260
SVGA monitor non-int	$310
15" SVGA .28mm	$420

Ask about our free training program

Multi-media Kits

Mitsumi CD Rom	$250
Sony CD Rom+Sound Commander	$360

Others

IDE controller w/ IO	$15
Serial mouse	$12
2400 baud modem	$30
2400/9600 S/R Fax modem	$56
101 keyboard	$25
Mini-tower case	$55
Medium tower case	$75
Penasonic KXP1124i prntr	$299
250MB tape back up	$210

FREMONT
48860 Milmont Drive, 102C
Fremont, CA 94538
510-438-0402
Fax: 510-438-0489
Tue-Sat 10 am to 6 pm

CAPITOLA
1220 41st Avenue, Unit G
Capitola, CA 95010
408-479-7319
Fax: 408-479-4316
Tue-Sat: 10 am to 6 pm

SAN FRANCISCO
1959 Ocean Avenue
San Franciaco, CA 94127
415-584-1122
Fax: 415-584-1123
Tue-Sat 10 am to 6 pm

SAN MATEO
2505 S. El Camino Real
San Mateo, CA 94403
(Cross Street: 25th Ave)
415-578-1614
Fax: 415-578-0268
Tue-Sat: 10 am to 6 pm

SACRAMENTO
5112 Madison Ave.
Sacramento, CA 95841
916-349-8200
Fax: 916-349-8299
Tue-Sat 10 am to 6 pm

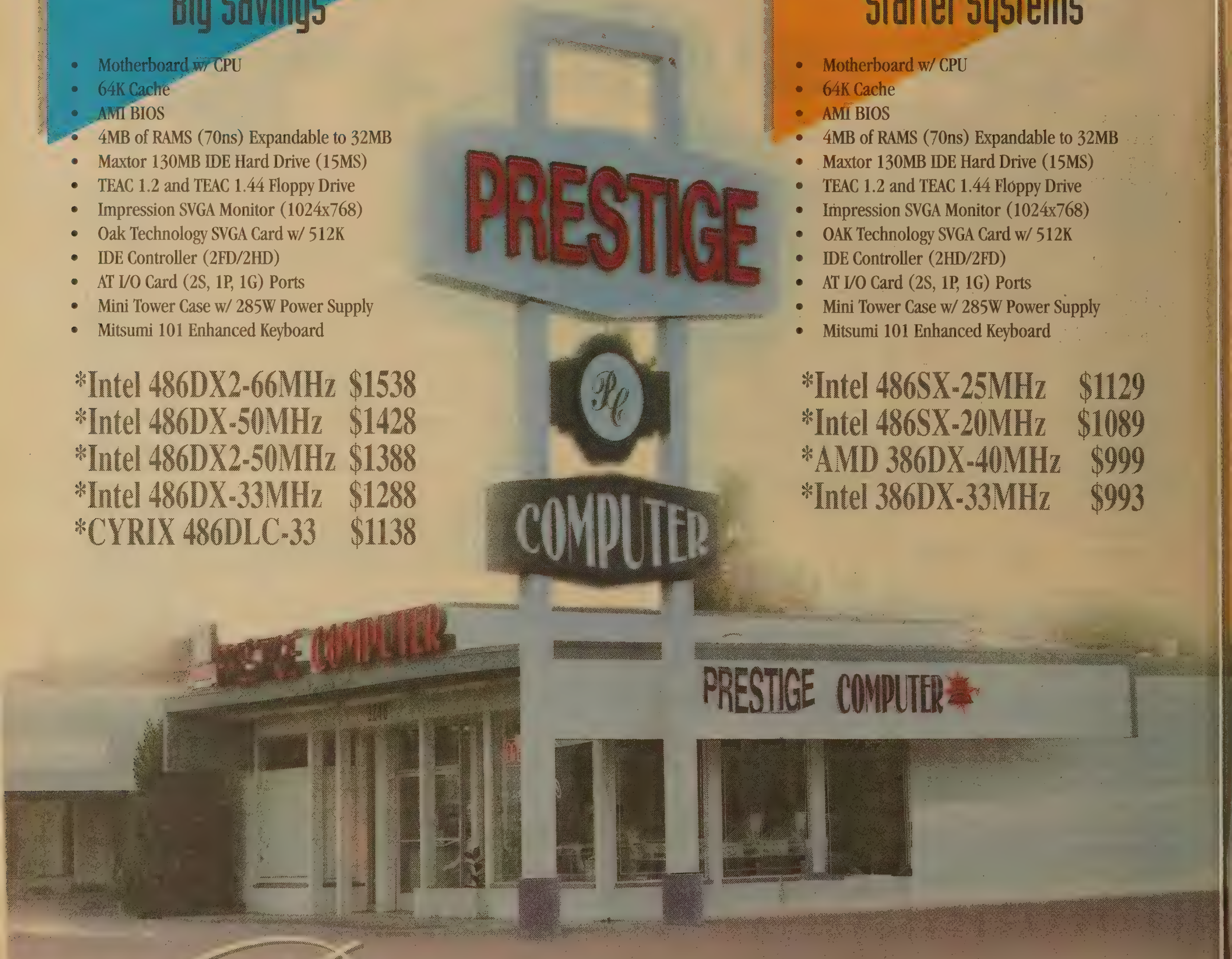
No Down Financing Available

VISA & Master Card accepted

•Apply for the Libre-Credit Card (with no application fee)

Advertised prices based on 3% cash purchase discount. Price subject to change without notice. Check for our everyday low price and other new products.

Power, Performance and
to Buy Your Next System



Big Savings

- Motherboard w/ CPU
- 64K Cache
- AMI BIOS
- 4MB of RAMS (70ns) Expandable to 32MB
- Maxtor 130MB IDE Hard Drive (15MS)
- TEAC 1.2 and TEAC 1.44 Floppy Drive
- Impression SVGA Monitor (1024x768)
- Oak Technology SVGA Card w/ 512K
- IDE Controller (2FD/2HD)
- AT I/O Card (2S, 1P, 1G) Ports
- Mini Tower Case w/ 285W Power Supply
- Mitsumi 101 Enhanced Keyboard

*Intel 486DX2-66MHz	$1538
*Intel 486DX-50MHz	$1428
*Intel 486DX2-50MHz	$1388
*Intel 486DX-33MHz	$1288
*CYRIX 486DLC-33	$1138

Starter Systems

- Motherboard w/ CPU
- 64K Cache
- AMI BIOS
- 4MB of RAMS (70ns) Expandable to 32MB
- Maxtor 130MB IDE Hard Drive (15MS)
- TEAC 1.2 and TEAC 1.44 Floppy Drive
- Impression SVGA Monitor (1024x768)
- OAK Technology SVGA Card w/ 512K
- IDE Controller (2HD/2FD)
- AT I/O Card (2S, 1P, 1G) Ports
- Mini Tower Case w/ 285W Power Supply
- Mitsumi 101 Enhanced Keyboard

*Intel 486SX-25MHz	$1129
*Intel 486SX-20MHz	$1089
*AMD 386DX-40MHz	$999
*Intel 386DX-33MHz	$993

Prestige Computer Inc.

408-249-3398 Fax: (408) 249-3392
3248 Stevens Creek Blvd., San Jose, CA 95117
Hours: Monday-Saturday 9:00am-7:00pm; Closed Sunday

Price Aren't the Only Reasons from Prestige Computer

Serving The Bay Area Since 1986

VESA Local Bus System

- Intel CPU
- VESA Local Bus Motherboard
- 128K Cache
- AMI BIOS
- Genoa VESA Local Bus SVGA Card w/ 1MB
- VESA Local Bus IDE Controller Card 2HD/2FD
- Maxtor 213MB IDE Hard Drive (13MS)
- TEAC 1.2 and TEAC 1.44 Floppy Drive
- 4MB of RAMS (70ns) Expandable to 32MB
- Impression SVGA Non-Interlaced Monitor (1024x768 .28DP)
- Medium Tower Case w/ 230W Power Supply
- Mitsumi 101 Enhanced Keyboard
- AT I/O Card (2S, 1G) Ports
- MS DOS 5.0 Package
- MS Windows 5.1 Package
- 3 Button High Resolution Serial Mouse and Pad

*Intel 486DX-33MHz	$1798
*Intel 486DX-50MHz	$1988

Hard Drives

40MB/60MB	$148/168
85MB/105MB	$198/228
120MB/130MB	$238
213MB IDE/SCSI	$338/428
340MB IDE (WD)	$488
760MB ESDI/SCSI	$1245

Monitors

Amber 12"/14"	$80/99
Mega Image (SVGA .28DP)	$260
Mega Image (SVGA .28DP) Non-Interlaced	$290
Impression (1024x768 .39DP)	$220
Impression/SOCOS (1024x768) .28DP)	$260
Impression/SOCOS Non-Interlaced (1024x768 .28DP)	$290
ViewSonic 6E/5+/6FS/7/8	$338/495/628/1055/1638
Sony HG 1304/1604	$545/989
NEC 3FGX/4FG/5FG	$636/736/1330

Video Cards

OAK 512K VGA	$38
Trident 512K/1MB VGA	$40/60
Diamond Hi-Color/24X/Stealth V-RAM/VL Bus with S3	$133/158/189/189
Orchid Sierra/Fahrenheit	$130/189
Tseng Lab 1MB/VL Bus	$88/138
Genoa VL Bus w/1MB	$138

Accessories

2400 Baud Modem	$35
Fax Modem (9600/2400)	$79
Colorado Tape Back-Up 120MB/250MB	$178/248
Summit Tape Back-Up 250MB	$220
Archive Tape Back-Up 250MB	$199

Call for Unlisted Component

Warranty

- 1 Year Parts
- Lifetime Phone Support
- 30 Days DOA Exchange
- If system seal is tampered, Prestige Computer Inc. reserves the right to cancel system warranty at its sole option

Services

- Free On-Line Tech Services
- 72 Hours QA and QC Burn in
- Ship Within 48 hours (Unless specified)
- No surcharge for credit cards
- 2% Discount for cash purchase

Quality

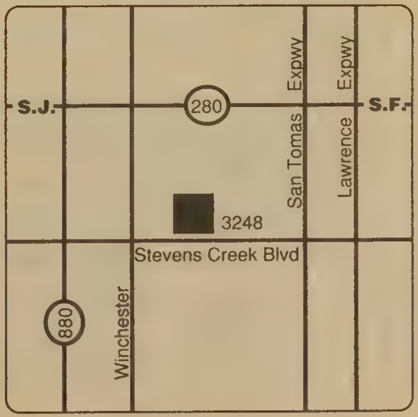
- Qualified Engineers
- Knowledgeable Staffs
- Reliable Parts (Tested) TEAC, Maxtor, NEC, Sony, ViewSonic, OMNI, Orchid, Diamond, Genoa and Many More

Guarantee

- Customer Satisfaction is our one and only goal!

Terms:

- Freight charge are not refundable
- Damaged shipment is the carrier's responsibility
- Return items must have a RMA# - please call 408-249-3398
- All specifications & prices are subject to change w/o notice
- Dealer inquiries & government POs are welcome
- Credit terms are subject to approval



continued from page 38

device for text and graphics. This works fine as long as there is no ambiguity between the two; however, this is not always the case. For example, in a word processor, when you want to select a region of text, the natural thing to try to do is to click and drag the pen across the region of text you're interested in; unfortunately, what happens if you do this without being careful is that you just draw a diagonal line across your text. To select text instead of drawing a line, you have to click and hold the pen down until the cursor changes to the "select" mode arrow, then drag it. This tends to make using the pen a bit more cumbersome and inconvenient, and makes the overall feel of using the system a bit clumsy.

There is a little button on the supplied pen which doesn't seem to do anything as far as I can tell, but it might have been used to differentiate between selection-mode and draw-mode. That would make use of the pen as a combination input device a bit more convenient. It is possible, however, to adjust the delay for switching between writing and selection mode; adjusting it a bit faster tends to make operation a bit more intuitive and smooth, at least for this reviewer.

PENMANSHIP

The eternal question with pen-based machines is, how good is the handwriting recognition? Even if you print neatly, the handwriting recognition algorithms are not all that reliable; perhaps 95%–98% recognition in informal tests, after playing a little bit with the "training" application, which allows you to train Windows for Pens to recognize your particular handwriting a little bit better.

However, training or no, there are certain pen-marks that are fundamentally ambiguous; the letter "O" and the numeral "0," for example, or the lowercase letter "l," the numeral "1," and uppercase letter "I"; also, the software often seems to confuse the numeral "5" with the letter "S." In addition, the algorithm frequently confuses uppercase and lowercase letters (with the letters "S" and "O" in particular). To improve this situation will require more sophisticated context-sensitive AI than is currently used in Windows for Pens. Handwriting recognition algorithms, at least the one provided in the current release of Windows for Pens, have a long way to go before they're really ready for prime time (and by "reasonably good" I mean making no more than one error per paragraph at most).

However, you can address some of these problems without changes in technology by making special "artificial" changes to your handwriting to distinguish between the various ambiguous letters. Though this is far from ideal, if you really need to use a pen-based solution right now and you can't wait for smarter handwriting recognizers, training yourself a bit to change your handwriting style for the benefit of the pen computer you're currently using will let you use existing technology and still get the recognition rate up to a reasonable level.

DRIVING WITH THE TOP OPEN

The GRiD is unique among pen-based computers, because it has a keyboard hidden underneath the screen. To access it, you just press two tabs on each side of the screen and flip the screen up, and the screen then locks into place, revealing a full-sized notebook-class keyboard underneath. The keyboard is quite serviceable, and turns the unit into a full-blown notebook computer.

It is possible to attach an optional trackball or mouse to the system to use at the same time as the pen; however, if the mouse is attached, the pen interface does not work in some Windows applications that were not designed for use with the pen. When using the pen as a selection device with the keyboard, it is advisable to make the delay from writing to selection mode as short as possible.

GENERAL MAGIC

General Magic, an independent company originally started by Apple, formally announced its cooperation with the giants AT&T, Sony, Motorola, Philips NV, and Matsushita in a joint venture to help create what they call a family of products called "personal intelligent communicators" (PICs, known as the next generation in palmtops to you and me).

The firm has created a new command language called MagicCAP, and a communications protocol called TeleScript, which will allow PICs made by many different manufacturers to communicate with each other over a variety of different networks. All of General Magic's partners will be using the TeleScript protocol, ensuring that all the products made by these different manufacturers will be able to communicate with each other.

GEOS

GeoWorks, a graphical operating system originally implemented for the old Commodore 64, the Apple IIgs, and later reimplemented as a small, efficient windowing operating system for the IBM PC, is currently working on modifying and extending its operating system for the new generation of "consumer computing devices."

GEOS is small, fast, and will run effectively on machines with as little RAM as 512K. The system is a full-blown preemptive multitasking environment, which is remarkably useful in a handheld device, when you often want to switch back and forth between different applications without losing your place.

YET MORE PCMCIA FAX MODEMS

Those of you who own PCMCIA 2.0-compatible palmtop or laptop computers are certainly not wanting for fax modem cards, and Best Data Products, Inc., offers yet another with its Smart One 1442 PCMCIA 14.4bps V.32bis V.42bis fax modem. The suggested retail price for this card is $599.

OmniTel, Inc., has announced its Business Card 2496c and the Business Card 2496c+ PCMCIA 2.0 fax modem cards. The cards utilize V.42bis error and data compression protocols, and operate at 2400 baud for data and 9600 for fax transmission. The 2496c+ can be used in conjunction with the Spectrum Cellular AXSYS System for use with cellular phones. It also features the MNP 10 protocol, allowing it to operate under very poor line conditions. The 2496c retails for $349 with DOS software, $375 with Windows software, and the 2496c+ is $399 and $425 for the DOS and Windows versions, respectively. ■

RESOURCES:

GEOS
GeoWorks
2150 Shattuck Ave.
Berkeley, CA 94704
(510)644-0883

GRiD 2260 Convertible
GRiD Corporation
P.O. Box 612706
DFW Airport, TX 75261
1-800-654-GRID

PenPoint
GO Corporation
950 Tower Lane,
14th Fl.
Foster City, CA 94404
(415)345-7400

PenTOPS and PenCentral
Sitka Corporation
950 Marina Village
Pkwy.
Alameda, CA 94501
(510)769-9669

Smart One 1442 PCMCIA Fax Modem
Best Data Products,
Inc.
9304 Deering Ave.
Chatsworth, CA 91311
(818)773-9600

TeleScript and MagicCAP
General Magic
Mountain View, CA
(415)965-0400

Windows for Pens
Microsoft Corporation
P.O. Box 97017
One Microsoft Way
Redmond, WA 98052
(206)936-8080

PC UPGRADES
COMPLETE PARTS AND LABOR WARRANTY

386 PC UPGRADES .... $299-$499
286 PC UPGRADES .... $169-$899
PC XT UPGRADES .... $349-$999
PC SALES
486-50/256K/8RAM/200MB/SVGA $1950
486-33/64K/4RAM/120MB/SVGA $1370
386-40/4RAM/120MB/SVGA $1070
386-33/4RAM/120MB/SVGA $1025
SSII CLONES STARTING AT $5995
CAD TURNKEY SYSTEMS STARTING AT $2400
HOME OF APPLICATION SPECIFIC INTEGRATED COMPUTER SYSTEMS
DEYS ENGINEERING
44380 S. Grimmer, Fremont (510) 770-1969

COMPLETE HARDWARE SALES & REPAIRS CALL FOR SOFTWARE
VISA

GOLDEN MICRO COMPUTERS

OPEN 7 DAYS

5 Years Labor Warranty
1 Year Parts Warranty
Extended Warranty Available!

EVERY SYSTEM INCLUDES:

4 MB RAM (except 286 system which uses 1MB RAM), Teac 1.2 & 1.44 MB Floppy Drive, 130 MB IDE Hard Disk, Trident 1 MB SVGA Card and SVGA (1024x768, .28dp) monitor, IDE/IO (two serial, 1 parallel, and one game port), 101 enhanced keyboard, minitower or desktop case with power supply.

SYSTEM UPGRADES:

Add $30 for 256K cache • Add $180 for EISA Systems
Add $150 for Local Bus System (Includes VGA & IDE Interface)

486DX 64K DX2-66/DX-50 DX2-50/DX-33 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed:
220/167/167/151 MHz

$1479/1379
$1339/1239

486SX 64K SX-25/SX-20 SLC-25 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed:
112/90/90 MHz

$1119/1049
$999

386DX 64K 40/33/25 COMPLETE SYSTEMS

- 4MB RAM exp to 32MB
- Shadow RAM

Landmark speed:
65/55/41 MHz

$989/979
$969

386SX 33/25 COMPLETE SYSTEMS

- 4MB RAM exp. to 32MB
- Shadow RAM

Landmark speed:
34/23 MHz

$929/919

286 20/16/12 COMPLETE SYSTEMS

- 1MB RAM exp to 4MB
- Page Interleave

Landmark speed:
24/19/16.6 MHz

$819/809
$799

CASE & POWER SUPPLY

Minitower w/200 Watt	$50
Desktop w/200 Watt	50
Mid Tower w/230 Watt	80
Full Tower w/250 Watt	110
200/230 Watt power supply	30/33
230/250 Watt power supply	39/41

VGA CARDS

VGA 800x600, 256K	$24
OAK 1MB	48
Trident 1MB	53
Tseng ET 4000	74
SpeedStar 24X	169
Stealth w/Sierra	175
Orchid Prodesigner IIs	119
Fahrenheit 1280 Win Acc (ISA)	155
Fahrenheit 1280 Win Acc (VESA)	185
ATI (1280, 2MB)	410
ATI (1024, 1MB)	215

ADD ON CARDS

MGP	$14
IDE controller	13
I/O (2s, 1p, 1g)	13
IDE I/O (2s, 1p, 1g)	14
4 Floppy controller	25
MFM controller	30
RLL controller	39
SCSI (16 bit)	65
Ethernet (8 Bit)	59
Ethernet (16 Bit)	71

PRINTERS

Panasonic 1180	$155
Panasonic 1123	199
Panasonic 1124i	285
Panasonic 1164	365

FLOPPY DRIVES

Teac 1.2MB 5.25"	$53
Teac 1.44MB 3.5"	49
1.2MB 5.25"	49
1.44MB 3.5"	45

MISCELLANEOUS

287 Math Co	$39
387SX25/16 Math Co	69/65
387DX-40/33 Math Co	79/75
256-70 SIMM	10
1MB 9x70 SIMM	29
Windows w/mouse	49
MS mouse (OEM)	45
Mouse	10
Sound Blaster	85

CD ROM

Sony CDU31A	$249
Mitsumi	210

KEYBOARDS

101 Enhanced	$20
Maxiswitch	30
Keytronic	33

MODEM

2400 Baud Internal	$29
9600/2400 Fax/Modem	49
9600 Modem External	190
14,400 Modem Int.	179

MOTHERBOARDS & CPU

286-12/16 or 20	$54/61
386SX-25/33	93/99
386DX-25	150
386DX-33 64K	155
386DX-40 64K	160
486SX-25 (CYRIX)	155
486SX-20 64K	219
486SX-25 64K	289
486DX-33 64K	410
486DX2-50 64K	515
486DX-50 64K	545
486DX2-66 64K	635

TAPE DRIVES

120 MB Colorado	$169
250 MB Colorado	239
250 MB Archive	189
120 MB/250 MB Tape	20/23

MONITORS

12" Mono	$75
14" Mono	85
14" Mono VGA	99
14" SVGA (.39)	210
14" SVGA (.28)	245
14" Non-Int SVGA	280
Viewsonic 6E	320
Sony 1304 (Non-Int)	560
NEC 4 FG	725

HARD DISK

40 MB Conner	$139
80 MB Conner	179
120 MB Conner/Maxtor	230
170 MB W.D./Conner	260
213 MB Maxtor	330
212 MB Conner	340
340 MB Maxtor	540
520 MB Fujitsu	860
1.05 GB Fujitsu	1240

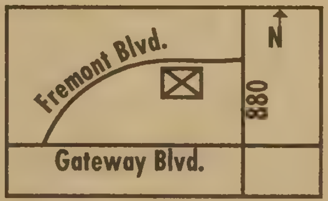
PC Repairs & Upgrades Welcome

GOLDEN MICRO COMPUTERS

46560 Fremont Blvd, Suite 408
Fremont, CA 94538 FAX (510) 623-0321

(510) 623-0866

Hours M-F 9-6 Sat/Sun 10-4 ATM COD



New Printers To Help You Go Everywhere!

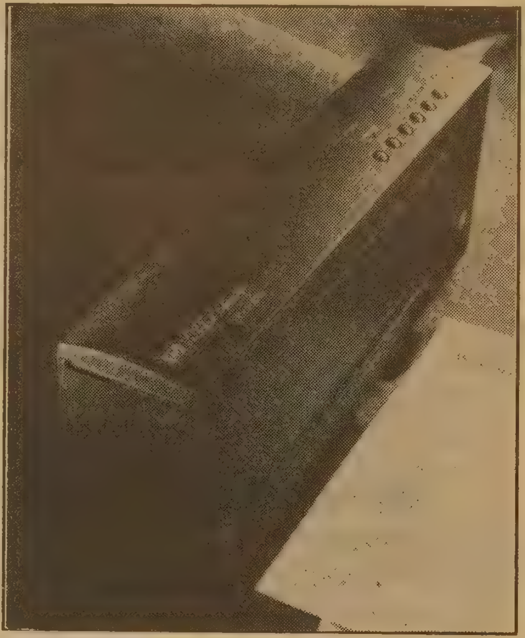
The Hewlett-Packard DeskJet Portable And The Canon Bubble Jet BJ-200 Are Designed To Meet The Demands Of Portable Computing

BY ED KAHN

RESOURCES:

Canon BJ-200 Printer, $549
Canon Computer Systems, Inc.
123 E. Paularino Ave.
PO Box 5048
Costa Mesa, CA
92628-5048
1-800-848-4123

Hewlett-Packard DeskJet Portable, $599
Hewlett-Packard Co.
Direct Marketing Organization
PO Box 58059,
MS511L-SJ
Santa Clara, CA
95051-8059
1-800-752-0900


The HP Deskjet Portable printer from Hewlett-Packard

Not long ago, finding a good quality printer that was both portable and affordable was nearly impossible. Over the last year, the availability of printers that meet these criteria has provided a major advance for users of laptops and other portable computers. A couple of months ago, I favorably reviewed a Coronajet. There are now two other printers that deserve attention.

Hewlett-Packard made history with their DeskJet series of printers. This was the first printer to offer laser quality with neither laser technology nor the price tag that goes with it. Since its introduction, the prices have come down and the number of models has expanded. You can get the basic DeskJet as either a color or black ink unit. Hewlett-Packard has added the DeskJet Portable to this family of fine printers.

The Portable fills a void—it offers the same quality as the larger DeskJet models, but weighs only 4.4lbs., without the optional cut sheet feeder ($99). This printer can be battery operated; printing one hundred pages before the Nickel cadmium battery ($99) needs recharging. The AC power supply, which will also recharge the battery, comes standard. Hewlett-Packard has gone to great length to make sure this printer will *really* work as a battery-operated unit by building in comprehensive power saving features. If the printer is out of use for more than two minutes, it enters sleep mode. It wakes up as soon as there is any action either on the control panel or from the computer. After thirty minutes of inactivity, the printer powers down completely. Another sophisticated feature is a fuel gauge that will let you know how much charge remains so you can be sure that you will be able to finish any printing job before power runs out.

In its basic configuration, you must insert pages individually. If your printing needs often include multiple page documents, I suggest using the cut sheet feeder. It adds 3lbs., but will accommodate up to fifty sheets of paper. Everything fits together nicely.

This printer really does offer laser quality output, but is a bit slower than either a true laser printer or its bigger, inkjet brothers. In draft mode, the output is about three pages per minute and in letter quality mode the output drops to about two pages a minute. The features on this printer are too numerous to mention, but you should know that it works perfectly in both a DOS and Windows environment. The only serious fault I can find with the HP DeskJet Portable is that it will not accommodate envelopes. Although many users will not find this a serious drawback, I felt limited by this.

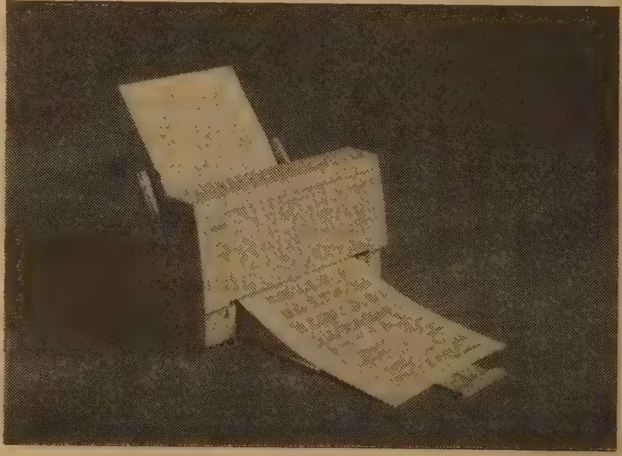
A carrying case ($99) that holds both the printer and a portable computer is available. The documentation is excellent and one of its highlights is that basic terms like font, typeface, style, point size, pitch, kerning, and other common terms are clearly explained.

If you don't have a need to use batteries, another new printer to consider is the Canon Bubble Jet BJ-200. This unit weighs 6.6lbs. and measures 13.7" x 7.6" x 6.8". The printer includes a built-in cut sheet feeder that holds about one hundred sheets of paper. The BJ-200 offers laser quality output with a resolution of 360 x 360dpi. Print output is roughly four pages-per-minute, which rivals many low-end laser printers.

While the Canon unit will work with MS-DOS applications, it really shines in a Windows environment. It comes with a driver that can be installed into Windows and thereafter works with any of the applications you use. If you are working in a DOS application, you can use either Canon or Epson mode. This lets a wide variety of printer drivers work with the BJ-200.

One of the nice features of the Canon BJ-200 printer is that it will print envelopes. You can stack up to ten business size envelopes in the cut sheet feeder. This printer accommodates only one size envelope, but this is sufficient for most business needs.

Documentation is excellent and the Canon provides a two-year warranty. The ink cartridge is made by Canon and retails for $25. While not completely waterproof, print holds up as well as any of the other ink jet printers. Canon has made a significant advancement with this unit and I highly recommend it for users who are looking for a compact machine with high-quality output. If you do not need either battery operation or true laser technology, this is certainly a machine to consider. It should make quite an impact on the market as it has the features and price point many people are looking for. ■


The Cannon BJ-200 Personal Printer

Copyright © 1993 by Ed Kahn. All rights reserved.

New Generation of American Network Solutions

ISC Computers & Communications, Inc.

We are networking/communications solutions professionals serving the Silicon Valley businesses since 1988. Our commitment to excellence helps us gain the highest confidence from the corporate world. Our services are authorized by major networking market leaders such as Novell, SCO, UNIX, and Computer Associates...Sneak preview on Computer Associates' UNICENTER HP-UX. The most effcient Unix integrated system management package possible on the market

Network Products for Servers & Workstations . . .

USRobotics™ WordPerfect CORPORATION SCO™ COMPUTER® ASSOCIATES Software superior by design. Novell Labs Tested & Approved TELEBIT® Maynard® An ARCHIVE Company DigiBoard

CA - UNICENTER FOR HP

- 1st Complete integrated UNIX sys. management software.
- Security, Production Control, Storage/Problem Management, and Resource Accounting.
- The most secure mission - critical computing.
- UNIX Word: "Best of 1992 Award"
- Corp. Computing : " Most Cost-effective Tech. for 1993"
- Call for product information.

CA - Accpac Plus

- Computer associate - Accpac Plus Accounting
- Authorized Consultant and Qualified Installer avail.
- Fully client-server setup or stand alone systems.
- Flexible modulated and/or integrated setup.
- Thousands of vertical market add-in products.
- All accounting solutions tailor to industry specifics.
- Supports Novell, Lantastic, OS/2, and more...

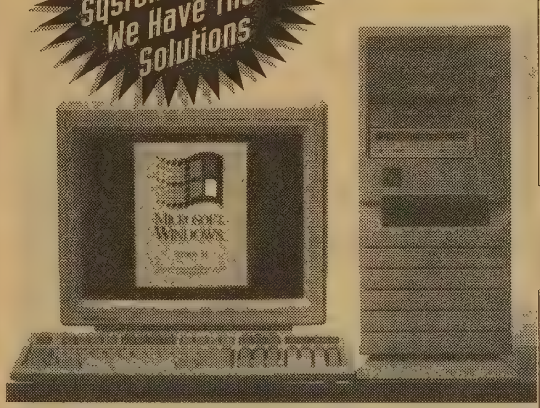
Santa Curz Operation

- XENIX / UNIX OPEN DESKTOP.
- Multiuser, multi tasking, open-system. Industry standards.
- ATT System V with GUI,X Window support.
- Support MS-DOS Compatible applications.
- Over thousands of applications available.
- Support Multi Processor systems (SCO MPX).

Multi-Lingual

- Display Chinese, Japanese, Russian, Greek & English
- Server based or stand-alone language font manager
- Support practically all Windows applications
- Windows based-13 easy input methods
- Current users: American Express, UCLA, Princeton Univ., United Farm Workers of America, CATIC

From Server-Client to System Boards, We Have The Solutions



Services

- Free consultation Hot Line
- Best price for networking periperals & systems
- Network system design/training
- Modem/Phone/On-Site support
- Data/Voice/Fax networks
- Hundreds of network applications available
- Scheduled maintenance

Servers... Workstations...

NetWare 3.11/4.0*

- Support up to 2,048GB disk space and 256MB of RAM
- Compatible with the most hardware and software.
- Files/volumes can span multiple physical hard disks
- Disk mirroring/duplexing. *Server mirroring
- Netware for SCO Unix available.
- CNE & CNA avail assist in system design/implementation.
- Training Course/Book Self-Pace Study Kit Available.

NetWare SQL /NFS/SFT III

- Support multiple desktop environment
- Direct access to btrieve-based data
- Support popular applications software i.e spreadsheet and query tools like ObjectVision, MicroSoft Access
- Easy access to corporate data on multiple servers
- Utilities for loading data and building indexes

Netware For Macintosh

- Provides AppleTalk Phase I & II internetwork routing
- Routes across Local/Talk, Arcnet, Ethernet & Token Ring
- Uses native AppleTalk as transport protocal
- Supports SNMP over AppleTalk managing objects
- Macintosh users can share files with PC users
- Allows Mac users send print jobs to NetWare print server
- Support 20, 100 & 200 connections

Windows NT

- Windows NT server/personal development systems
- Server configured for collaborate development
- ISA or SCSI and CD-ROM XA options available
- SCSI II and CD-ROM XA options Available.
- Windows NT compatible CD-ROM upgrade kit available.
- Fast hard drive support Windows NT's NTFS format.
- Ask us about Windows NT Networking.

Your CNE's Choice

NICE (U.S.) Motherhood

- Super 486DX-66 EISA w/256k Cache......$1199
  1 VLB, 256 MB on board, & up 1 MB of Cache.
- MIni 486DX-50 EISA w/256k Cache........$929
  3 EISA Bus(2 VLB), 5 ISA Bus, 128MB on board.
- Local 486DX-33 ISA w/256/k Cache........$699
  8ISA, 2VLB, 32 MB on Board, & 256k Cache.

Tech Support Hotline:
(408) 227-2287
Tel: (408) 227-2286 • Fax: (408) 227-3086
Corporate/School PO and RFP welcome

ISC Computers & Communications, Inc.

23 Great Oaks Blvd.. Suite E, San Jose, CA 95119
Free initial consultation

COMPUTER Of The Month:

Bondwell 486NC/R

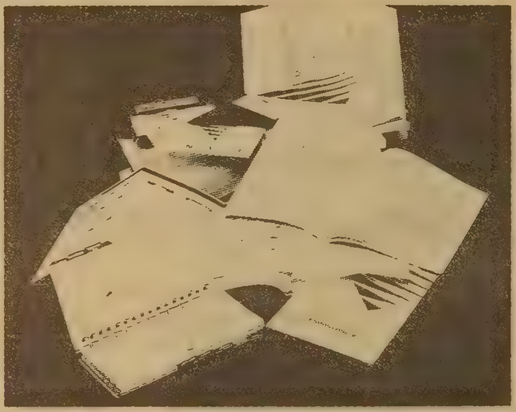
Bondwell offers computers of excellence at reasonable prices. Their removable hard disk cartridge machine is truly innovative and the only computer to offer this particular feature. The Bondwell 486NC/R is built around a Cyrix 486SLC chip running at 25MHz. A 33MHz unit is available for an extra $100.

It weighs 5.2lbs and measures 11.7" x 8.5" x 1.5". The light weight is achieved in part by designing the computer with no built-in floppy drive. Instead, Bondwell has elected to provide a detachable floppy drive that fits neatly onto the side of the computer. When you are traveling, you can easily pack the floppy drive away in your baggage and use it only when needed.

The computer's rechargeable NiCad battery pack is smaller than most I have seen, but still will run from between two and four hours, depending upon your use and how the power saving options in the Setup program are configured.

The most remarkable feature of this Bondwell is its hard drive system.

The 486NC/R has a VGA, white-on-black display that measures 10" diagonally. The built-in display is excellent, but if you need color you will have to use an external monitor. One is easily attached through the video port on the back of the machine. I have recently begun using ETC Computer's 15" flat



FREE ADVICE IS WORTH EXACTLY WHAT YOU PAY FOR IT.

FREE ADVICE

GOOD ADVICE

How many times have you heard it... "We'll even throw in free training" or "Of course, training is included, free." Ya, sure, right. You'll believe it when you see it. Your mom didn't raise any fools. Let's face it - getting the proper training is just as important as getting the proper hardware or software. That's why you should choose the leader in operating systems training, Evernet Education Services. Evernet Education is the most highly respected national LAN training company. Why? One reason is that we are part of Evernet Systems, Inc. - the nation's largest network systems integrator. So you know you are getting instructors who bring the experience gained in thousands of successful installations into classrooms furnished with the finest equipment available. Call Evernet today for all the details on the great new things that are coming up this year.

GUARANTEED SATISFACTION
EVERNET

We're so sure that you will get the finest training anywhere, we offer this guarantee on all of our courses. If an Evernet student fails to pass any of the certification testing, we welcome them back to review the appropriate course at no additional cost.

Novell Authorized Education Center

CALL TODAY 1-800-447-3658

EVERNET
EDUCATION SERVICES
Los Angeles • San Francisco • Sacramento •
Houston • Chicago

BUYING A COMPUTER CAN BE FUN!

Are you afraid of walking into a computer store and being overwhelmed by computer talk?...well you don't have to be afraid anymore. At Winners Circle we offer an informal and relaxed atmosphere. Our knowledgeable sales staff takes the time to help you choose the right computer from our large selection of major brands. Come to Winners Circle and find out why...our computers are better.

Mac & Apple II Games
50% Off

Atari ST Games
50% Off

VIDEO TOASTER SYSTEM 2.0!

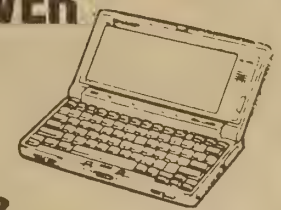
NewTek
Authorized

Create broadcast quality television on your desktop!

THE POWER

of large PC's in a compact pocket size!

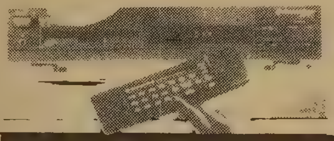
- superlative LCD with CGA emulation
- A suite of built-in features
- ultra-light



SHARP
3000
only $899

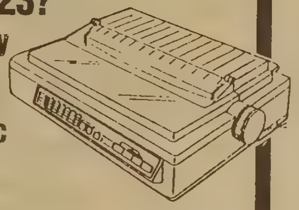
CDTV
INTERACTIVE MULTIMEDIA
from Commodore

Complete Electronic Encyclopedia and Professional-Level Arcade Machine



only
$499
with this ad

Why Buy an Obsolete Panasonic 1123?
When You Can Buy a current,
Quiet **Panasonic 2123!!**



Panasonic

Winners Circle Announces

In Office on In Home
One Hour
Computer Tune Up
Only $50

Includes:

1. Overall analysis of system performance
2. Analysis of hard disk for bad tracks
3. Defragmentation of hard drive
4. Consultation on disk and subdirectory organization

This service is available within a 15-mile radius of the store. Other services are available for additional charges.

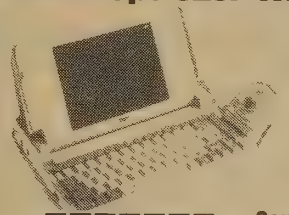
Why go to Medical School, Buy...

ILIAD **Computer-Based Diagnostic Tools for Internal Medicine**

ILIAD 4.0 operates in four modes: Consultation, Critiquing, Browsing, Simulation. Consultation as an expert consultant to provide a differential diagnosis. Critiquing as a second opinion to your presumptive diagnosis. Browsing is an electronic textbook covering over 1,300 internal medicine diseases/syndromes and the most recent medical literature. Simulation as a knowledge-based patient case simulator to teach and test medical problem solving. Available in Windows for the PC and for the Mac.

$699 In Stock

The DECpc 320P Notebook



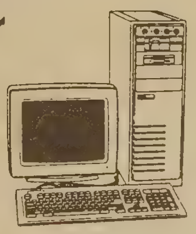
Intel i386sx running at 20MHz, 2MB, 40MB IDE Hard Disk Drive, 3.5" 1.44MB Floppy, TST Backlit VGA, 2400bps Data, 84-Key keyboard, Logitech Trackman Portable, MS-DOS 5.0 and MS Windows 3.0
(Factory installed)
(Carrying case included)

digital

Compare at $2495 **$1195**

Clearly Superior
486 Andy Tower

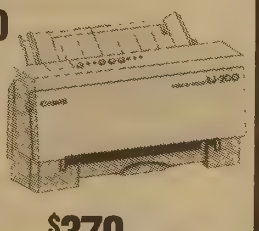
- 486DX-33
- 4MB RAM exp.
- 240MB hard disk
- 1.2 & 1.44 floppy drive
- SVGA monitor
- DOS 5.0 & extended keyboard



$1895 Wow!

Canon
Bubble Jet 200

Breakthrough Technology



Canon's new Bubble Jet printer incorporates new print technology that produces laser quality printing at a truly affordable price. With 360dpi resolution, the BJ 200 prints text and graphics with the speed and quality of a laser printer. And the new compact size fits anywhere easily, without taking up valuable space.

$379 with ad

The Most Powerful Pocket-Sized Computer

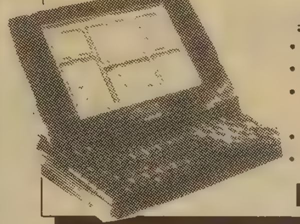
PSION SERIES 3

Easy to use Graphical User Interface with windows, pull-down menus, dialog boxes and icons.

- Word Processor compatible with Microsoft Word
- Database with cross referencing templates
- Time & Personal Management Diary
- Communicates with printer, modems, etc.
- Computer Calculator
- Expandable
- Size only 6.5"x3.3"x0.9"

$399 In Stock

You've seen it advertised for $5000...



BCC

- 386SXL-20MHz Processor
- 80MB Hard Disk
- 4MB Expandable to 8MB with Standard RAM
- Fax/Data Modem
- VGA Display

Now Only $1799

AST PowerExec 3/25SL

- Intel® 386SL Processor
- 25MHz clock speed
- 4MB of high performance RAM
- 60, 80, 120, or 160MB Hard Drive

AST PowerExec 3/25SLC

- Intel® 386SL, 25MHz processor
- 4MB of high performance RAM
- 60, 80, 120, or 160MB Hard Drive
- 9.5" matrix display

AST®
Authorized System Reseller

486WIN-SLC

TM 4000

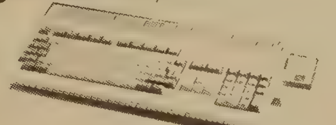
- 486SLC-25MHz
- 80MB Hard Disk
- 2MB RAM
- VGA Display
- Track Ball
- Windows tied to BIOS
- Weighs 5.6lbs.

$1849

TEXAS INSTRUMENTS

COMMODORE

Amiga 1200 *Personal Computer*



- Advanced Graphics Architecture™
- 256,000 simultaneous colors from a palette of 16.8 million available
- Hardware Scan Doubling for flicker free display on 31 KHz monitors

Commodore®
AMIGA

FEATURING TOP RATED SERVICE

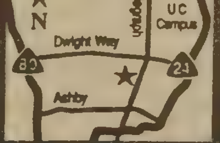
- Friendly, Knowlegeable Staff • Full Time Tech Support
- In-House Authorized Repairs • Free Public Domain Software • Free Training

PRODUCT SELECTION

- Top-Rated Major Brand Computers and Printers • CD-ROM • Tape Backup
- Laptop Computers • Modems and Fax Machines • Large Selection of Software & Accessories
- Color Desktop Publishing

WINNERS CIRCLE SYSTEMS

2618 Telegraph Ave. • Berkeley, California • 510-845-4823 • Fax 510-845-2400
Hours: Monday Thru Saturday 10:00-6:00



The Bondwell Removable Cartridge Hard Disk Notebook

RESOURCES:

Bondwell 486NC/R, $1899
Bondwell Industrial Co., Inc.
47485 Seabridge Dr.
Fremont, CA 94538
(510)490-4300

ETC CA-1560 Monitor $599
ETC Computer Inc.
46711 Fremont Blvd.
Fremont, CA 94538
(510)226-6250

screen monitor for testing portable computers and find it a delight. I will give a more extensive evaluation of this monitor in a later column, but for now want to indicate that it is worth searching out if you are considering buying a moderately priced monitor.

While the keyboard on the 486NC/R is adequate, I don't care for its layout. To access PgUp, PgDn, Home, and End, you have to also use the awkward Fn key. While this is common, I will never select a keyboard layout that forces me into this kind of contortion—unless there are enough redeeming features. The double whammy on this machine is that even if you don't like the keyboard, you are stuck with it as there is no provision for adding a keyboard of your choice. I really wish Bondwell had provided a keyboard port so you could use an alternate keyboard.

Nevertheless, there are enough good qualities about this computer that you may still select it. You get a lot of computer for your money. The basic package comes with 4MB of RAM—which can be expanded. Additional memory must be installed by Bondwell or an authorized service center. You also get MS-DOS 5.0, Windows, a carrying case, a Hayes compatible 2400/9600 baud fax/modem and software that lets you send and receive faxes. All of this will cost you only $1899. A single serial port is provided. However, if you use Windows, you will not be able to use any other serial devices besides the mouse and the built-in fax/modem.

The most remarkable feature of this Bondwell is its hard drive system. There are other computers on the market these days with removable hard disks, but this is the first I have seen with a removable hard disk cartridge. The hard drive resembles a floppy drive in that you slip in a cartridge that holds 42MB of data. Bondwell delivers these cartridges with SuperStor installed so the disk space automatically jumps to 80MB. Additional cartridges ($109) are available. Access time to the hard drive is a fast 14.5 milliseconds. To conserve power, a program is included that lets you slow this access time down to either of three slower speeds. Even the slowest speed of 28ms is as fast as many hard drives.

The application possibilities are almost limitless. Complete security is easily achieved by removing the cartridge, which is smaller than a 3.5" floppy disk, from the computer. If you have either multiple users for a single computer or multiple units of this model computer, the removable hard disk offers many benefits. A single user can set up different hard disk cartridges for different applications, customers, or projects. If you never remove the cartridge, you have a fairly conventional 80MB hard disk computer. In any case, you never have to worry about outgrowing the capacity of your hard drive. This is more of a problem on portables than on desktop units as generic hard drives are not easily retrofitted into laptops and other portables.

Finally, adequate documentation is provided and an 800 number is provided in case of difficulty. ■

ALL 100% GUARANTEED PARTS

WE WON'T BE UNDER SOLD!

SIMM MODULES

IBM COMPATIBLE

4M X 9-80	$125
4M X 9-70	135
4M X 9-60	145
1M X 9-10	27
1M X 9-80	32
1M X 9-70	33
1M X 9-60	35
1M X 3-80	28
1M X 3-70	30
1M X 3-60	32
256 X 9-10	7
256 X 9-80	9
256 X 9-70	10
256 X 9-60	11

APPLE/MAC

1M X 8-10	$27
1M X 8-80	30
1M X 8-70	32
4M X 8-80/70	119

DRAM

1M X 1-80	$3.50
1M X 1-70	3.60
1M X 1-60	3.70
1M X 4-80/70	16.00
256K X 1-80	1.50
256K X 1-70	1.65
256K X 1-60	1.75
256K X 4-80	3.80
256K X 4-70	3.90
256K X 4-60	4.00

CPU'S

486DXII-66 INTEL	$555
486DXII-50 INTEL	419
486DX-50 INTEL	459
486DX-33 INTEL	329
486DX-25 INTEL	299
486SX-25 INTEL	195
486SX-20 INTEL	122
386DX-33 INTEL	74
386DX-40 AMD	69
386DX-25 INTEL	65
386DX-25 AMD	65
386SX-25 INTEL/AMD	37
386SX-20 INTEL	34
386SX-16 INTEL	30
386DX-20 INTEL	39

WE WILL TRADE YOUR OLD MEMORY FOR NEW

BUSINESS AND ECONOMY SYSTEM SPECIALS

486-50MHz	$1999
486-33 DLC	1299
386SX-16/25	989
386DX-25/33 64K CACHE	1299
486SX-20/25	1499
486DX-33	1799

ALL SYSTEMS INCLUDE:
Tower Case, 4MB, IDE Controller, 2SPG, 1.44FDD, HDD, 1MB SVGA Card, 28 CIR. Monitor, 101KB, Mouse, DOS

CALL FOR CUSTOM CONFIGURATIONS!

MOTHERBOARD W/0 CPU

486DX-50 W/256K CACHE	$135
486DX-33 W/64K CACHE	127
386DX-40 W/64K CACHE	117
386DX-33 W/64K CACHE	107
386SX-16 W/CPU	89
386SX-25 W/CPU	105
386SX-33 W/CPU	159

HARD DRIVES

CONNER	40MB IDE	$157
	80MB IDE	217
	120MB IDE	279
	200MB IDE	409
	340MB IDE	649
	544MB IDE	799
MAXTOR	80MB IDE	229
	130MB IDE	289
	360MB IDE	729
	340MB SCSI	669
	660MB	CALL
QUANTUM	52MB IDE	199
	120MB IDE	309
	240MB IDE	579
SEAGATE	40MB IDE	165
	105MB IDE	235
	130MB IDE	280
	200MB IDE	529
CDC	91.5MB SCSI	199
FUJITSU	540MB IDE	950

CALL FOR BEST PRICES ON SCSI & IDE HARD DRIVES NOT LISTED!

OPEN M-F 9-6 SAT 9-4

MONITORS

MONOCHROME 12"/14"	$75/99
MONO VGA 14"	119
14" SVGA 0.28	255
NON-INT SVGA 0.28	299
SONY 1304	589

FLOPPY DRIVES

1.2MB TEAC 5.25"	$55
1.2MB SAMSUNG 5.25"	49
1.44MB TEAC 3.5"	49
1.44MB SONY 3.5"	50

TAPE BACK-UPS

120MB COLORADO	$189
250MB COLORADO	249
500MB PORTABLE	CALL!

MATH CO'S

387DX 16-33 INTEL	$79
387DX INTEL	69
387SX 25,20,16	CALL
387DX 33,25,20 CYRIX	69
4167-33 WEITEC	599
4167-25 WEITEC	319
3167-33 WEITEC	299
3167-25 WEITEC	99

LASER PRINTER MEMORY

HP II &IID, CANON LBP-811 & LBP-811R, OLIVETTI PG 108 & PG 208	
1MB BOARD	$79
2MB BOARD	109
4MB BOARD	169
HP IIP, III, IIID	
1MB BOARD	79
2MB BOARD	109
4MB BOARD	169
IBM 4019 & 4019B	
1039136 1MB BOARD	105
1039137 2MB BOARD	139
1038675 4MB BOARD	299
IBM 2029e	
1MB	75
2MB	99
4MB	175
TI MICROLASER & MICROLASER PS	
1MB	85
PANASONIC KX-P4420, KX-P44501	
1MB BOARD	129
2MB BOARD	157
4MB BOARD	229
EPSON EPL-6000; TOSHIBA PAGELASER 6; PACKARD BELL PP9500; FACIT P6060; MANNESMAN TALLY 905; AT&T 593 LASER; NCR 6435 LASER	
1MB BOARD	155
2MB BOARD	160
4MB BOARD	260

TEL: 408-452-7700
FAX 408-452-7771
1630 OAKLAND RD. A208
SAN JOSE, CA 95131

MasterCard VISA

IMD INTERNATIONAL MICRO DEVICES

ASK ABOUT OUR SYSTEM LEASE PROGRAM

IMD Offers complete satisfaction with every transaction. Same day shipping. Prices subject to change without notice. All trademarks are the property of their respective owners.

VESA Local Bus! We are the Experts!

UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle

AIR ISA VESA Local Power Station

○486 AIR ISA 3 Slot VESA LocalBus 256K Cache Motherboard
○8MB 70ns RAM
○1.2M & 1.44M TEAC Floppy Drives
○213MB Western Digital Harddisk 64K Cache
○VESA LocalBus 32Bit IDE Controller with 2S/1P/1G
○VESA LocalBus Cirrus-Logic 1MB Accelerator 12M WinMarks
○14" 1024X768NI 0.28DP Monitor
○Premium Mini Tower 230W PS
○101 KeyTronic Keyboard

486-33DX	$1780
486-50DX/2	$1885
486-66DX/2	$2008

See The Difference! With this name brand AIR motherboard, you get 3 VLB slots, Bus mastering capability, and guarranteed future compatiblity, you are definitely buying into future with this motherboard! Our VLB 32Bit IDE controller boosts harddisk performance to 2650KB/sec data transfer rate (by CORETEST V2.90), three time on average faster than regular ISA Bus! Our Cirrus-Logic Windows Accelerator also buys you incredible video performance of 12Million Winmarks and 8777 Character/ms in DOS (Landmark V2.0). Another technology advance and price breakthrough brought to you from us! No one can offer you this perfect machine at this perfect price, we guarrantee it!

Recommended Upgrades:

Orchid Fahrenheit VLB STD/VA/P9000	add $59/79/345
Diamond VLB Stealth 24/Pro/Viper	add $45/179/335
Promise 1MB Cache VLB Controller	add $245
UltraStor SCSI-2 VLB 34F + SCSI HD	add $Call
Premium DeskTop/Med/Full Size Tower	add $5/25/45
KFC 14"/15"/17" Multisync Monitor	add $78/200/589

AIR EISA VESA Local Power Station

○486 AIR EISA 3 Slot VESA LocalBus 256K Cache Motherboard
○8MB 70ns RAM using 72 Pin SIMM
○1.2M & 1.44M TEAC Floppy Drives
○340MB Western Digital Harddisk 64K Cache
○Promise DC-4030VL VESA LocalBus IDE 1MB Cache Controller
○VESA LB Orchid P9000 Windows Accelerator 44M Winmarks
1MB DRAM + 2MB VRAM with Weitek 9000 Chipset
○KFC 15" 1280x1024 Multisync, Digital Controlled Monitor
○Premium Medium Tower 230W PS
○ I/O 2S/1P/1G
○101 KeyTronic Keyboard

486-33DX	$2971
486-50DX/2	$3076
486-66DX/2	$3199

Highest-end you can find! AIR EISA VESA LocalBus Motherboard supports 256MB Memory on board, yes, 256MB using 72 Pin SIMM! With 8 EISA Slot and 3 VESA LocalBus extensions, you can plug in any different bus cards you want! We bundle this machine with a 286 CPU built-in Promise DC-4030VL 1MB Cache Controller and rockets the Data Transfer Rate to 6950KB/Sec! This amazing controller supports 4HD/4FD and transfers up to 14.3MB/Sec. Besides it, we add New Orchid P9000 Windows Accelerator and makes Windows running at 44Million Winmarks. Believe it, you won't find a better machine at a better price!

Recommended Upgrades:

UltraStor SCSI-2 VLB 34F with SCSI HD	add $Call
Premium Full-Size Tower	add $20
KFC 17" Multisync 1280x1024 Monitor	add $389

Basic System Includes: 486 Motherboard & Intel CPU, 1MB RAM-70ns, 2HD/2FD IDE Controller with 2S/1P/1G, 1.2M Teac Floppy Drive, Standard Mini-Tower Case with 200W Power Supply, 101 Key Enhanced Keyboard

486 ISA System Configuration	486SX 25MHz w/128K	486DX 33MHz w/128K	486DX/2 50MHz w/128K	486DX 50MHz w/128K	486DX/2 66MHz w/128K
Basic System	$489	$599	$704	$744	$827
Basic System plus 85MB HD, 512K SVGA Card & .39DP Monitor	$913	$1023	$1128	$1168	$1251
Basic System plus 4MB RAM, 85MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1050	$1160	$1265	$1305	$1388
Basic System plus 4MB RAM, 130MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1095	$1205	$1310	$1350	$1433
Basic System plus 4MB RAM, 213MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1197	$1307	$1412	$1452	$1535
Basic System plus 8MB RAM, 130MB HD, 1.2&1.4FD, 512K SVGA & .39DP Monitor	$1223	$1333	$1438	$1478	$1561
Basic System plus 8MB RAM, 213MB HD, 1.2&1.44FD, 512K SVGA & .39DP Monitor	$1325	$1435	$1540	$1580	$1663
Basic System plus 8MB RAM, 340MB HD, 1.2&1.44FD, 512K SVGA & .39DP Monitor	$1448	$1558	$1663	$1703	$1786

VESA Local Bus

○486 ISA 2 Slot VESA LocalBus 128K Cache Motherboard
○4MB 70ns RAM
○1.2M & 1.44M TEAC Floppy Drives
○170MB Western Digital Harddisk 64K Cache
○VESA LocalBus 32Bit IDE Controller with 2S/1P/1G
○VESA LocalBus Cirrus-Logic 1MB Accelerator 12M WinMarks
○14" 1024X768NI 0.28DP Monitor
○Premium Desktop 230W PS
○101 Key Enhanced Keyboard

486-33DX	$1493
486-50DX/2	$1598
486-66DX/2	$1721

Don't just blindly look for lowest price! Regular ISA system is bottom-necking. Even with a fast CPU, it's like a three hundred horse-powered YUGO, harddisk and video performances are limiting the overall performance. Think smart and get a well-balanced VESA LocalBus system for now, and for your future. Spend a hundred dollars more and break the bottom-neck! With our 2 slot VESA LocalBus motherboard with VESA LocalBus IDE and Video Accelerator, harddisk performance TRIBLES! Video runs TEN TIMES faster in both DOS and Windows than regular ISA system. Come on in and get a ride on this soon-to-be-dominating machine! You have to see it to believe it!

Recommended Upgrades:

Orchid Fahrenheit VLB STD/VA/P9000	add $59/$79/345
Diamond VLB Stealth 24/Pro/Viper	add $45/179/335
Promise 1MB Cache VLB Controller	add $245
UltraStor SCSI-2 VLB 34F + SCSI HD	add $Call
Premium Mini/Medium/Full Size Tower	add $-5/20/40
KFC 14"/15"/17" Multisync Monitor	add $78/200/589

Call for DX 50MHz VESA LocalBus!

Hard Disks

Western Digital

130MB IDE WDAC2120	$225
170MB IDE WDAC2170	$255
213MB IDE WDAC2200	$327
340MB IDE WDAC2340	$450

Toshiba

877MB MK438FB SCSI-2	$1009
1.2GB MK538FB SCSI-2	$1329

Quantum

120MB LPS120A IDE 256K	$309
240MB LPS240A IDE 256K	$389
425MB PD425A IDE 256K	$849
1.2GB P1225 512K SCSI-2	$1449

Maxtor

130MB IDE 7120AT 15MS	$235
213MB IDE 7213AT 15MS	$325
340MB IDE/SCSI LXT340	$535/545
535MB IDE/SCSI LXT535	$765/775

Conner

85MB IDE CP30084E 17MS	$180
120MB IDE CP30104 19MS	$225
170MB CP30174E 17MS	$250
170MB SCSI CP30170	$275
213MB IDE CP30204F 256K	$325
213MB SCSI CP30200 256K	$350
544MB IDE CP3544 12MS	$830
540MB SCSI-2 CP3540	$919

☑ **Free Local Area Delivery for any System Purchase**
☑ **1 Year Parts and Life Time Labor Warranty**
☑ **Expertise Technical Support Hotline**
☑ **30 Day Money Back Compatiblity Guarantee**

Phone: 510-226-6746

Fax: 510-226-6758

7 Days a Week 9:00AM-6:00PM PST

Components/Upgrades

Motherboard without CPU: (Call for CPU Prices)

486 ISA 128K Cache (25/33/50MHz-SX/DX/DX2)	$120
486 ISA VLB 128K 2 VLB Slot Symphony (25/33MHz) Guarantee Compatibility!!	$155
486 AIR ISA VESA LB 256K 3 VLB Slot(33/50MHz)	$236/249
486 AIR EISA VESA LB 256K 3 VLB Slot Upto 256MB using 72Pin SIMM (33/50MHz)	$465/500
486 Orchid VESA VLB SuperBoard 256K Cache 2 VLB Slot (33/50MHz)	$290/330

Memory:

1MB RAM (256K-70ns SIMMx4)	$39
4MB RAM (1M-70ns SIMMx4)	$128
16MB RAM (4M-70ns SIMMx4)	$520
72Pin SIMM Module (4MB/8MB/16MB)	$150/280/540

Controller Card:

AT I/O 2S/1P/1G	$12
16Bit IDE 2FD/2HD with 2S/1P/1G	$14
VESA LocalBus IDE Controller with 2S/1P/1G	$56
Orchid VLB IDE 2HD/2FD Controller	$89
Promise DC-4030VL VLB IDE 1MB Cache IDE	$250+39
DTC 2270VL VLB IDE with 2S/1P/1G	$95
UltraStor SCSI-2 VLB 32K Bus-Mastering 34F	$285

Video Card:

16Bit 512K/1MB Trident SVGA 1024x768	$39/59
16Bit 1MB Tseng-4000 72Hz 32K Color	$81
SpeedStar 24X Accelerator 1MB 16.7M Color	$150
Tseng ET4000 VESA LB 1280x1024 16.7M Color	$125
VLB Cirrus Logic Windows Accelerator 1MB	$120
Genoa WindowsVGA 8500VL VLB 1MB	$135
Fahrenheit VLB w/1MB Standard/Voice Annotation	$179/199
Orchid P9000 VLB 1MB DRAM + 2MB VRAM	$465
Diamond Stealth 24 VLB 1MB DRAM S3-805	$165
Diamond Stealth Pro VLB 2MB VRAM S3-805	$299
Diamond Viper VLB 2MB VRAM 44M Winmarks	$455
ATI Ultra Pro VLB 2MB VRAM 30M Winmarks	$420

Monitor:

Impression 14"1024x768x0.39DP	$205
Impression 14"1024x768x0.28DP	$255
Impression 14"1024x768NIx0.28DP	$285
KFC 14" Multisync, 1280x1024NIx0.28DP, Digital-Control,Non-Glared	$363
KFC 15" Multisync,1280x1024NIx0.28DP, Digital-Control,Non-Glared,Flat-Screen	$485
KFC 17" Multisync,1280x1024NIx0.26DP, Non-Glared,Flat-Screen	$874

Modem:

2400 Baud Internal + Software	$31
2400 Baud with V42bis MNP 5 9600 S/R Fax Internal + Software	$57
14.4K Baud V.32Bis V.42Bis MNP5 14.4K S/R Fax Internal with UART16550 + Software	$194

Floppy Drive/Tape Backup:

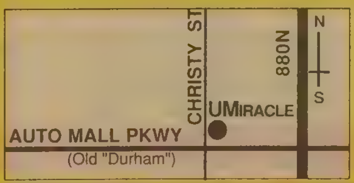
Teac 1.2M 5.25"	$53
Teac 1.44M 3.5"	$48
Teac 2.88M 3.5"	$95
Teac Dual 1.44M & 1.2M	$135
Archive 250MB Internal TapeBackup + Tape	$194+21

KeyBoard/Mice/Misc:

Chicony 101 Enhanced	$23
KeyTronic 101 Enhanced	$34
Focus 2001 101 Enhanced Click	$41
Focus 8000 111 with Calculator	$44
MS Compatible 3-Button Mouse	$15
Logitech First Mouse Serial	$39
Logitech MouseMan Serial	$49
Logitech Trackman	$75
486 CPU Cooling Fan	$20

Call for MultiMedia Upgrades!

- Prices, Specifications and Availability Subject to Change without Notice
- Prices are based on Cash Discount, Credit Card Purchases Subject to Surcharge
- Non-Local-Area Sales are Subject to Shipping and Handling Charges
- All Mail-in Returns Require a RMA Number & Must be In Original Condition Prepaid

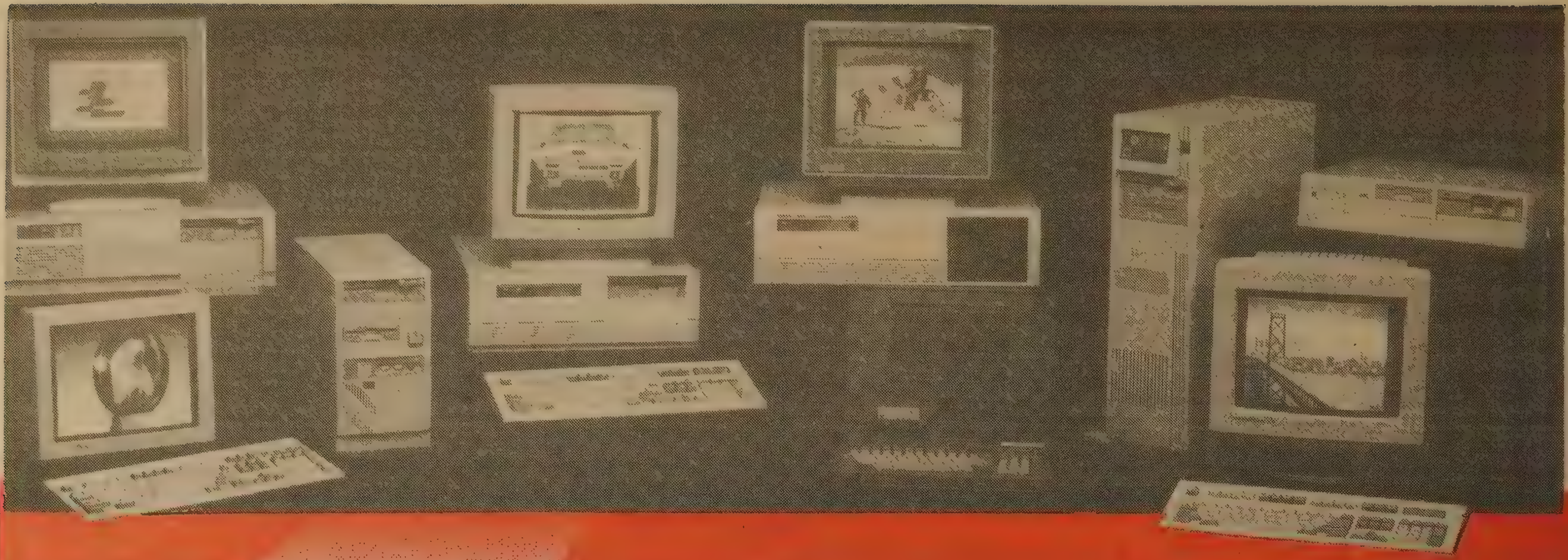


UMiracle Microsystems, Inc.

"The PC Enthusiastic Group"

COD

43038 Christy Street
Fremont CA 94538



DOMINO COMPUTER SPECIAL

Shareware Available In Our Stores

WE OFFER ONLY THE BEST

SERVICE • COMPATABILITY • RELIABILITY • AFFORDABILITY

DOMINO HAS 25 SERVICE CENTERS NEAR YOU

CELLULAR PHONES
Motorola PT-550
$389

SPEAR® All-In-One VGA Systems

SPEAR 386SX/25/2MB	$1048
SPEAR 486DLC/33/64k	$1248
SPEAR 486/33/128k/4MB VESA LOCAL BUS	$1548
SPEAR 486DX2/66/256k/8MB VESA LOCAL BUS	$2078

Systems come with following features:

- 1.2MB floppy and 1.44MB floppy
- 80MB hard disk
- 2 serial, 1 parallel, 1 game
- 1280 x 1024 WINSTAR SVGA card 1MB
- Super VGA monitor (.28 pitch)
- DOS 5.0, 3-button mouse & mouse pad
- Hard disk loaded with spreadsheet, word processing, DOS tutor, and many more
- Memory upgrade: per MB $35
- Hard disk upgrade: 130MB $85
  - 200MB $210
- CD-ROM (6 titles) special upgrade: $290
- Laser printer .... Add $605
- OKI 24 pin printer .... Add $215

PC SOURCES May 91 Product Review on SPEAR 386/33:
"An aggressively priced product that provides top performance."

PANASONIC Printer Promotion

KX-P2180	(9 pin, 240CPS, color opt.)	$160
KX-P2123	(24 pin, 240CPS, color opt.)	$230
KX-P2624	(24 pin, 300CPS, wide car.)	$360

(Two of each per store. First come, first served)

LOSS LEADER of the MONTH

SPEAR 486DLC/33MHz/4MB/64k

- 1.2MB Floppy Drive
- 40MB HD
- 2 serial, 1 parallel, 1 game port
- 101 key Keyboard
- VGA card and monitor

$899

TYPEREADER OCR SOFTWARE

with flatbed scanner $799

Turn Documents Into Editable Files
Eliminate Costly Retyping

OCR Your Document in Our Store for $2 a page

***HOT PRODUCT!!* BitFax/OCR**
Turn Fax into Editable Text $59

NEW! SOUND MACHINE
SoundBlaster Clone with Speakers & Joystick $99

Specialized in Novell and UNIX Networks

DOMINO CLEARANCE CENTER

Located in our Fremont Store

VGA Card	$25
DOS 4.01 (Upgradable to 5.0)	$10
New Baby AT Case	$15
Demo Monitor (Mono/EGA)	$20/80
New Everex MFM Controller Card	$25
New Evergraphic Mono Card	$15

14.4/14.4 Fax/Data Modem (limit 5 per store) ... $175

NOTEBOOK SPECIAL

Brother HJ-100i Notebook Printer $295
486/33/80MB Notebook ... $1999

100% financing available for your home computers and leasing for your business

OAKLAND
1238 Harrison
Oakland, CA 94612
(Harrison & 12th)
510/839-1800
Corporate Sales Div., Ext. 123
Macintosh Sales Div., Ext. 125
Network Sales Div., Ext. 128

FREMONT
46573 Mission Blvd.
Fremont, CA 94539
(Cnr Mission & Warm Springs)
510/623-7181
Corporate Sales Div., 623-7897
Network Sales Div., 623-7892

PLEASANTON
6700 Santa Rita, Ste. D
Pleasanton, CA 94588
(Pleasant Village Shopping Ctr. at 580)
510/847-1771

Prices subject to change without notice. Not responsible for typographical errors.

Washington State Demonstration Pilot Program

A New Study Explores The Impact Of Telecommuting

BY ROBERT MOSKOWITZ

In 1990, the Washington State Energy Office launched a carefully controlled study of telecommuting called the Puget Sound Telecommuting Demonstration Project. The final report on this project, released within the last two months, contains a wealth of factual and anecdotal data that sheds new light on the actual and potential impact of widespread telecommuting, and gives anyone involved in a telecommuting effort a broader perspective on such programs.

Twenty-five public and private organizations participated in the Puget Sound Telecommuting Demonstration Project (PSTDP). Most telecommuters simply stayed home certain days to do their work, but twenty-four telecommuters from nine organizations began working one or more days per week at a newly established Washington State Telework Center, located in Seattle.

> **Only about 30% of the project's telecommuters required special equipment to be purchased so they could work away from the office effectively. But in most cases this special technology greatly improved performance on the job.**

The PSTDP was designed to achieve several major goals, including:

- Demonstrate telecommuting to employers in the region;
- Research and evaluate the impacts of telecommuting on the environment, energy use, employees and their families, and employer organizations;
- Assess the potential for widespread telecommuting in the region.

As with other demonstration projects and pilot programs, the results of the PSTDP can be generalized more or less accurately to cover other situations, and thus help organizations which are contemplating a telecommuting program do a better job of planning and implementing a successful effort. Here's a brief summary of the project's final report.

ON TECHNOLOGY

Many people assume that complex, expensive technology is an integral part of a successful telecommuting program. Often, program managers develop formal expectations that telecommuting will require computers, modems, fax machines, voice mail, and other associated high-tech equipment. In the PSTDP, however, equipment proved to be far less important than initially anticipated by either participants or their supervisors. One in eight of the telecommuters involved in the PSTDP needed no special equipment at all. When equipment was needed, many participants were able to supply their own, and many others used surplus equipment readily available from their employers. Only about 30% of the project's telecommuters required special equipment to be purchased so they could work away from the office effectively. But in most cases this special technology greatly improved performance on the job.

ON COMMUNICATION

Far more important than computers and other specialized equipment was the simple ability to communicate with coworkers, supervisors, and others. To remedy this problem, one in four telecommuters wound up adding a second telephone line to their home, at an average cost of $7 per month (which in most cases was paid for by the employer). The addition of a second telephone line not only upgraded the ability to communicate, it helped telecommuters to maintain a professional or businesslike profile for both colleagues and those outside the organization.

The PSTDP revealed some interesting communication problems. For example, nontelecommuting coworkers indicated in follow-up interviews that they were occasionally reluctant to call a telecommuter at home, even though under similar circumstances they would not have hesitated to make contact in the office. In one case, a telecommuter who receives a great many telephone calls found that coworkers who had to answer his phone on days he worked at home began to resent his absences from the office. On at least one day, they failed to pass along the messages. Later, the telecommuter gained access to a new voice mail system, and the technology seemed to eliminate both the resentment and the delay in receiving messages.

ON ACCEPTANCE

Workers who had never telecommuted before took to the experiment rather well. For example, nearly half were successful working at home just one day a week, while more than one in five of the participants were successful working at home more frequently. The most common days for telecommuting turned out to be Wednesday and Thursday. During the study, the telecommuters also proved to be very flexible about their new approach to work. When some of the program's participants found pressures to perform at the office building up, such as during busy seasons or periods of unusually heavy demands, the telecommuters found it easy to change their work schedules and simply spend fewer days away from the central site. Supervisors also found it very easy to schedule important meetings or change work assignments without worrying whether telecommuters could accommodate the new plans.

Certainly one of the most critical factors in the success of any telecommuting program is supervisor support. During the PSTDP evaluation, more than 90% of the participants reported that their supervisor favored the new arrangements. But there were some prob-

Copyright © 1993 by Robert Moskowitz. All rights reserved. *Robert Moskowitz is a business consultant based in Woodland Hills, CA, who writes frequently on productivity, office automation, and technology.*

lems. In the follow-up phase of research which came after a year of telecommuting, the percentage of participants who said they were getting adequate feedback from their immediate supervisor declined slightly, from 65% to 57%. This tends to bolster the widespread understanding that maintaining adequate communication between supervisors and telecommuters requires more effort than when supervisors and employees work exclusively in the office together.

How The Demonstration Project Was Run

Because the Puget Sound Telecommuting Demonstration Project (PSTDP) was intended to be a research effort yielding reliable and replicable results, project coordinators expended considerable effort in recruiting the pairs of telecommuters and supervisors who eventually agreed to participate. Applicants were initially asked to fill in a questionnaire, and their responses were carefully analyzed. If either the potential telecommuter or the immediate supervisor did not meet certain criteria, or if there were signs of unusual circumstances or difficulties that might prevent successful telecommuting, the pair were not included in the project.

About 280 telecommuters, as well as their supervisors and coworkers, and a scientific comparison group which did not telecommute during the research phase of the project were recruited as participants in the PSTDP trials. The PSTDP included one full year of active telecommuting, although the total length of the project—including recruitment, analysis, and report writing—was nearly double that.

Once the participants were selected and pledged to a year of telecommuting within the PSTDP, they received at least one day of training on such matters as policies and procedures, work flow considerations, setting up a home office, compensating for any telecommuting impact on coworkers, and communication techniques. Supervisors received additional training in "managing by results," intended as a way to defuse the common problem of supervisors who feel—rightly or wrongly—that a worker out of sight is a worker not performing up to par. The pairs of telecommuters and supervisors were also coached in reaching a workable arrangement for telecommuting.

The research portion of the project involved all the participants and a comparison, non-telecommuting group of employees in a steady stream of surveys, interviews, and focus groups. In addition, particular segments of those participating became the subject of in-depth case studies, and all the telecommuters were required to keep daily travel logs.

—Robert Moskowitz

ON PRODUCTIVITY

One of the critical issues in telecommuting is its effect on worker productivity. Many studies have shown marked increases among those who telecommute, and the PSTDP yielded results consistent with these expectations. But it also produced evidence that without proper planning and management, productivity improvements from telecommuting can be partially or fully offset by the negative impact of telecommuting on others in the work group.

For coworkers who remained in the office five days a week, supervisors noted some problems. For example, more than 40% of coworkers showed envy of the telecommuters.

For example, 89% of PSTDP telecommuters rated their productivity as "excellent" after a year of telecommuting experience, compared with 83% the year before, when they had not yet begun telecommuting. Nearly 30% of the project's participants who were telecommuting said their productivity went up during the year, while only 8% thought they had been less productive. Supervisors, however, were somewhat less enthusiastic about the impact on productivity of letting people work outside the office. One-third of the supervisors said the telecommuters they managed were less productive during the year, and their willingness to rate telecommuters as "excellent" dropped slightly from 76% of those participating in the project (when the project began) to 68% (after a year of telecommuting experience). Although supervisors said at the beginning of the project only 2% of program participants "needed improvement," after a year of experience they rated a full 10% of the telecommuters as "needing improvement."

Perhaps the most interesting attitudinal change among supervisors was their reaction to the comment: "Some people take advantage of telecommuting to slack off on their work." Before the project began, only 12% of the supervisors in the PSTDP agreed with this sentiment. After a year of telecommuting experience, 20% agreed with it.

ON THE IMPACT OF TELECOMMUTING

The PSTDP yielded other unexpected results when analysts looked at the impact of telecommuting on coworkers who remained in the office. More than one in four of these non-telecommuters felt their work load was larger after telecommuting began. Moreover, they attributed the increased burden directly to the telecommuting patterns of others in the office. This feeling was particularly marked when the worker's immediate supervisor switched over to part-time telecommuting. It may be reasonable to conclude from this that supervisors who manage office-bound workers have a more difficult time making a success of telecommuting.

The evidence cuts both ways, though. One in six of the telecommuters agreed that their new schedule was shifting extra work onto staff subordinates who remained in the office. But another 6% believed their new pattern of part-time telecommuting resulted in less work for their support staff.

ON PERSONAL SATISFACTION

On a more personal, individual level, the PSTDP showed that telecommuting favorably impacts morale, quality of life, and job satisfaction. Curiously, though, many of the telecommuters had stress levels as high—or higher—than people in equivalent jobs who do not telecommute. Nevertheless, telecommuters reported that the ability to eliminate at least two trips per week to the office—thus avoiding at least some of the week's traffic load—contributed to a much lower work-related stress level than they would have otherwise experienced, and tended to make telecommuters much happier than they had been before the PSTDP began.

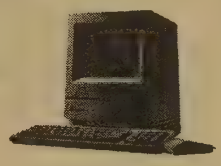
Individual telecommuters also cited such benefits of telecommuting as extra quiet time in which to work, significant time saved from commuting which could be put to more productive use, and more flexibility in scheduling their time.

According to supervisors, telecommuting had a positive impact on job satisfaction for those actually doing it. But for coworkers who

New Products, New lower prices

Only at Computer Selection

Apple® Macintosh® Classic® II



- 68030 processor, 16 MHz
- Internal Apple SuperDrive™
- 2 serial ports, ADB, SCSI and external disk drive ports
- all-in-one design

Priced to Go!

$879.99
4 MB RAM, 40 MB HD

Apple® Macintosh® IIsi

- 68030 processor, 20 MHz
- 3 MB RAM, 40 MB HD
- Internal Apple SuperDrive™
- color & sound capabilities

Monitor and keyboard extra

Limited quantity
demo units

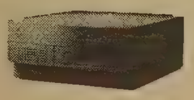
$899.99

Apple® Macintosh® LC III

- 25 MHz 68030 processor
- Apple SuperDrive™
- The powerful choice for education or business

$1248.99
4 MB RAM, 80 MB HD

Apple® Macintosh® IIvx



- 32 MHz 68030 processor
- 68882 math coprocessor
- Internal Apple SuperDrive™
- Optional internal CD-ROM drive

Incredible Price!!

$1649.99
4 MB RAM, 80 MB HD

Apple® Macintosh® PowerBook™ 145

Now in Stock

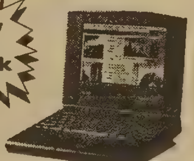
- 25-MHz 68030 microprocessor
- 4 MB RAM, 40 MB HD
- Internal Apple SuperDrive™
- Sleek, ergonomic design

$1999.99

Apple® Macintosh® PowerBook Duo™ 210

- 25-MHz 68030 microprocessor
- 4 MB RAM, 80 MB HD
- the best of both worlds

Now in Stock



$2049.99

Apple® Macintosh Centris™ 610 with AppleColor™ High-Resolution RGB Monitor

- 20 MHz Motorola 68040 chip
- Apple SuperDrive™
- Space for an additional internal storage device

- Apple® Hi-Res RGB monitor
- Sets the standard in color graphics for personal computers

M1345 LL/A
Keyboard extra

$2149.99
4 MB RAM, 80 MB HD
Price includes Monitor

Apple®

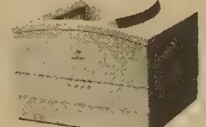
Authorized Dealer

Apple® LaserWriter® Pro 630

- 600-dpi resolution for crisp text
- Optional 300 dpi plus PhotoGrade™
- Comes with 64 scalable TrueType™ fonts

$2399.99

Apple® LaserWriter® Pro 600

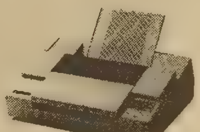


- 300-dpi resolution
- 100- and 250-sheet tray
- Comes with 64 scalable TrueType™ fonts

$1999.99

Apple® Color Printer

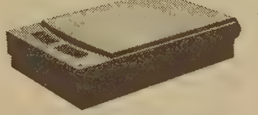
- 360-dpi resolution
- 64 scalable TrueType™ fonts
- The perfect choice for desktop color printing



$2189

New Product!

Apple® Color OneScanner™



- Includes powerful image-editing tools for touch-up, rotation, and scaling
- Easy to use with any Macintosh

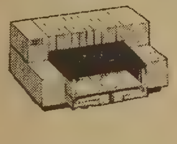
$1299.99

Now in Stock!

Apple, the Apple logo, LaserWriter and Macintosh are registered trademarks of Apple Computer, Inc. AppleColor, Apple Color Printer, Apple Color OneScanner, Apple SuperDrive, Macintosh Centris, PhotoGrade, PowerBook, PowerBook Duo and TrueType is a trademark of Apple Computer, Inc. Classic is a registered trademark, licensed to Apple Computer, Inc.

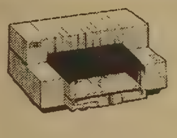
HEWLETT PACKARD
Authorized Dealer

HP DeskWriter Printer



- HP's most affordable laser-quality printer for the Mac®
- 2-page per minute 300 dpi laser-quality printing
- Convenient desktop design

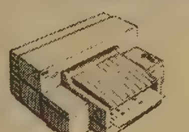
HP DeskWriter C Printer



- Quality **COLOR** printer
- 300 dpi
- 100 sheet paper tray
- Scalable fonts
- Grayscale blacks

$549.99

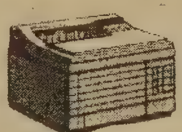
HP DeskWriter 550C Printer



- Quality plain-paper printing in **BLACK & COLOR**
- 300 dpi
- 35 scalable typefaces
- Macintosh® System 7™ compatible

$749.99

HP LaserJet 4M Printer

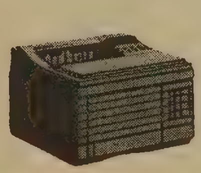


Now in Stock!

- 600 dpi print quality at 300 dpi price
- Resolution Enhancement technology & microfine toner for superior quality
- Outstanding language & platform (Mac®/PC) flexibility

600 dpi Quality at a 300 dpi Price

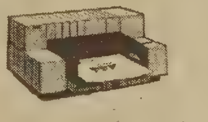
HP LaserJet 4 Printer



Now in Stock!

- 600 dpi print quality at 300 dpi price
- Fast 8 ppm printing
- Full networking capabilities
- Resolution Enhancement technology & microfine toner for superior quality

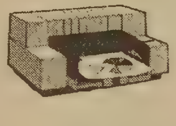
HP DeskJet 500 Printer



- Affordable laser-quality printing
- Wide variety of built-in fonts
- Supports leading software applications

$389.99

HP DeskJet 500C printer



- Affordable laser-quality printing
- Allows 300-dpi **COLOR** printing on plain paper & transparencies
- Wide variety of built-in fonts

$519.99

HP DeskJet 550C printer

- 300 dpi, laser-quality **BLACK & COLOR** printing
- Prints on plain paper, special paper, transparencies, & envelopes
- Convenient color printing w/ two ink cartridges

$749.99

COMPUTER SELECTION

- **Redwood City**
  (415) 368-8828
  2001 Midlefield Road
  (at Woodside Rd , by Price Club)
  M-F 9:00 - 6:00 Sat 12 - 5
  Fax: (415) 368-8803
- **San Francisco**
  (415) 543-9888
  201 Mission Street
  (across from PG & E Hdqtrs)
  M-F 9:00 - 5:30 Sat 10 - 4
  Fax: (415) 777-1177
- **Sunnyvale**
  (408) 746-2288
  1202 Apollo Way
  (at Central & Lawrence)
  M-F 9:30 - 5:30 Sat 12 - 5
  Fax: (408) 746-2208
- **Walnut Creek**
  (510) 943-2882
  1676 N. California Blvd
  (next to Max's Opera Cafe)
  M-F 9:00 - 5:30 Sat 12 - 5
  Fax: (510) 943-2890

We reserve the right to limited quantities. Not responsible for errors or omissions. Sales price good for one week from date of advertisement.

remained in the office five days a week, supervisors noted some problems. For example, more than 40% of coworkers showed envy of the telecommuters. After a year of the telecommuting demonstration, more than 60% of the coworkers wanted to begin telecommuting, too.

These reactions and feelings are further indications that many employees prefer this style of work precisely because it gives them more freedom to perform in their own way. For example, telecommuting tends to facilitate concentration and eliminate unwanted interruptions. It also allows each individual to do more work during his or her most productive hours of the day.

ON THE ENVIRONMENTAL IMPACT

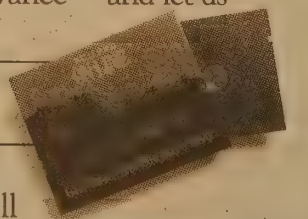
Telecommuters in the PSTDP were asked to keep detailed travel logs. After analysis, these logs showed that before the project began each individual averaged fifty-two miles per day in 101 minutes of drive time. After a year of telecom-muting, they averaged forty-nine miles in ninty-one minutes on regular work days, and only thirteen miles in thirty-five minutes on telecommuting days.

The average telecommuter working at home trimmed something like thirty-four commutes to work and fourteen hundred miles from a year's worth of driving. The average telecommuter working at a telework center eliminated very few commuter trips, since he or she still had to get from home to the telework center, but saved about twenty-six hundred miles of driving per year.

Significantly, most of the reduction came during peak traffic hours, when it does the most good for traffic reduction.

ON THE CHARACTERISTICS OF A GOOD TELECOMMUTER

According to extensive research into those who participated in the demonstration project and those who were part of the comparison group, those who agreed to try telecommuting are slightly more likely than their non-telecommuting counterparts to be part of a high-income household and to be included in a "professional" job description. They also tend to rate their own job performance higher than those who do not telecommute. ■



NOW THEY'LL RUN ON YOUR DESKTOP.

Californians can now take full control of their finances with Wells Fargo ON-LINE. With direct access to the bank from your Macintosh® or IBM® compatible PC, it's like opening a 24-hour Wells Fargo office right in your house.

Tap Directly Into Your Accounts

Review the last forty days of activity for each of your Wells Fargo accounts. Confirm that a check has cleared. Verify your deposits.

With Wells Fargo ON-LINE, you can access your accounts around the clock—and download information to spreadsheet or money management programs.

Pay Your Bills Online

Wells Fargo ON-LINE saves you time and postage with virtually unlimited bill paying. You can schedule recurring payments like a car loan or mortgage up to a year in advance —and let us worry about the details.

Call For A Demo Diskette Today

Give the stagecoach a test drive for just $3.95. Call **1-800-PC-WELLS, ext. 333** and we'll send you a demo diskette that takes you through all the features of Wells Fargo ON-LINE.

Sign up for Wells Fargo home banking and we'll apply the cost of the diskette to your ON-LINE start-up kit. We'll also waive the fee for your first month of ON-LINE service.

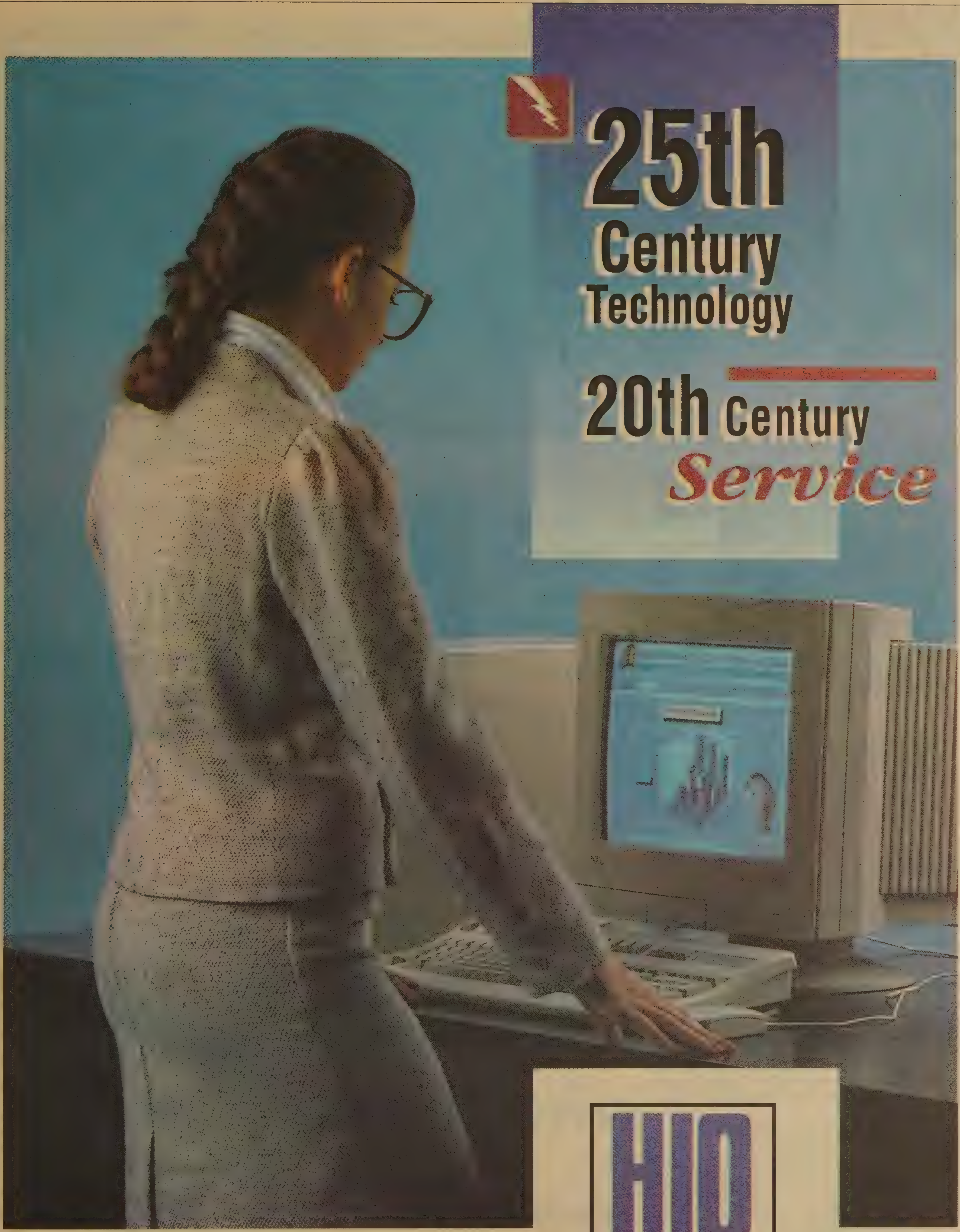
Call for a diskette today. And discover the control you get when you boot up your bank.

WELLS FARGO BANK

©1992, WFB, N.A.

Member FDIC

Start-up kit: $8.95. Service fee: $12.95/Month (First month free with offer). IBM is a registered trademark of IBM Corporation. Macintosh is a registered trademark of Apple Computer, Inc.


25th
Century
Technology
20th Century
Service

HIQ

HiQUALITY SYSTEMS, INC

FREE Lifetime Technical Support!

30 Day "No Questions Asked" Money-Back Guarantee **90 Day, Credit Available***

One Year Parts and 2 Years Labor Warranty **On-Site/Extended Warranties Available**

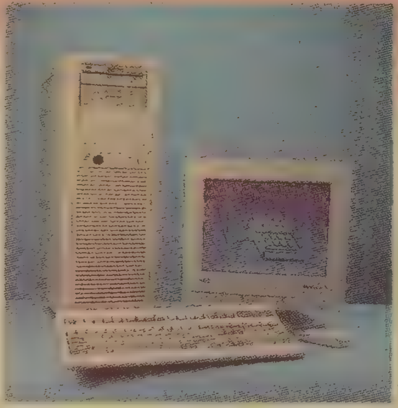
Customized Configurations and Leasing **Corporate and Government PO's Welcome**

*Subject to Credit Approval

"HiQ has always provided the kind of service I look for in selecting a vendor to work with.

I know I can count on you to continue to provide us with real value for our money."

- Sandra E Thurman
Systems Analyst for
Amdahl Corporation



This System is Capable of Running Marathons!

HiQ Super Power 4DX2-66VLB System

When you need a system to run Local Area Networks or Scientific and Graphics applications efficiently, this Top-of-the-Line system offers you Power, Speed and Dependability. The HiQ Super Power 486DX2 is built with the highest quality parts available, such as Intels' Lightning-fast 486DX2-66MHz Microprocessor and the Micronics High-end motherboard!

- Intel 486DX2-66MHz Processor
- Micronics VESA Local Bus motherboard
- 4MB RAM (70ns) exp. to 64MB
- 256K SRAM Cache
- 2-VESA LB, Six 16-Bit Slots
- 1.2MB and 1.44MB Teac Floppy Drives
- 240MBQuantum/IDE HDD w/256K Cache
- Integrated 32-Bit Local Bus IDE controller w/ 2S, 1P port
- ATI Ultra Pro Local Bus SVGA Card w/1MB VRAM
- 15" NEC 3FGX SVGA Color Monitor,
- Non-Interlaced 1024x768, 0.28dp, Flat-screen
- 101 Enhanced Waterproof keyboard
- Mid Tower Case w/230W Power Supply (Full Tower upgrade option - add $70)

FREE Software!

Only
$2959

33MHz of Pure Dependability and Power!

HiQ Power 433VLB System

Light Years ahead of the competition, This HiQ System processes Video Images 10 TIMES FASTER than standard ISA systems - perfect for AutoCad or Windows.

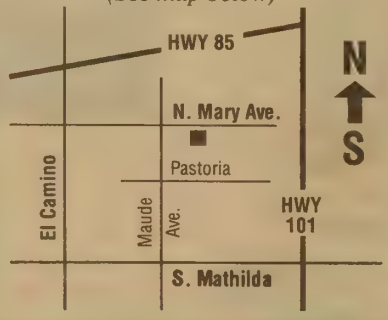
- Intel 486DX-33MHz Processor
- Micronics VESA Local Bus motherboard
- 4MB RAM (70ns) exp. to 64MB
- 256K SRAM Cache
- 2-VESA LB, Six 16-Bit Slots
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB Western Digital/IDE Hard Disk Drive
- Integrated 32-Bit Local Bus IDE controller
- w/ 2 Serial, 1 Parallel port
- VESA Local Bus 32-Bit SVGA Card w/1MB RAM
- 14" Viewsonic 6E SVGA Color Monitor,
- Non-Interlaced 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- Mid Tower Case w/230W Power Supply

FREE Software!

Only
$1969

FREE!
Hi-Res Mouse, MS Windows 3.1 & MS DOS 5.0 w/Manuals FREE with ALL Desktop Systems!

Stop by our convenient Sunnyvale Store
(See map below)



Northern California Locations:

South Bay
740 N. Mary Ave., Sunnyvale, CA 94086
(408) 245-5836, Fax: (408) 245-3108

Marin County
2048 Fourth St., San Rafael, CA 94901
(415) 459-1893, Fax: (415) 459-7248

Stockton
1588 East March Lane, Stockton, CA 95209
(209) 472-7269, Fax: (209) 472-7269

Sacramento
11015 Olson Drive, Rancho Cordova, CA
(916) 863-7076, Fax: (916) 863-7098

Hi-Q Ultimate 433I/450I Systems

For Business People Who Need a Powerful, Reliable System to Get the Job Done.

- Intel 486DX-33/486DX-50 Processor
- 64K SRAM Cache 4MB RAM
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Trident OEM SVGA Card, 16-Bit, 1024 x 768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- AT Desktop Case w/220W Power Supply

Only $1519/$1729

Hi-Q Ultimate 43VLB/44DX2-66VLB Systems

The Computer for Creativity. This Versatile System Allows You to Create the Most Impressive Graphics!

- Vesa Local Bus 32-Bit SVGA Card w/1MB RAM
- Intel 486DX-33/486DX2-66 MHz Processor
- 4MB RAM (70NS) Exp. to 32MB
- 64K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- Vesa Local Bus 32 Bit IDE controller 2H/2F w/ 2 Serial, 1 Parallel and 1 Game ports
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- AT Desktop Case w/220W Power Supply

only $1659/$1869

Hi-Q Ultimate 340DX/425SX Systems

An Affordable System that has the Power to Run the most Complex Accounting Programs!

- AMD 386DX-40MHz Processor or Intel 486SX-25MHz Processor
- 4MB RAM (70ns) Expandable to 32MB
- 64K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Trident OEM SVGA Card, 16-Bit, 1024 x 768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- Mini Tower Case w/200W Power Supply

Only $1219/$1339

Hi-Q Ultimate MultiMedia Family 425SX System

Ideal for Youngsters and Adults Alike - An Audio/Visual Treat for the Whole Family! Interactive software Makes Learning Fun!

- Intel 486SX-25MHz Processor
- 64K SRAM Cache
- 4MB RAM (70ns) Exp. to 32MB
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 S/1 P/ 1 Game ports
- Trident OEM SVGA Card, 16-bit, w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced Waterproof keyboard
- AT Desktop Case w/220W Power Supply
- NEC External SCSI CD/ROM w/Pro AudioSpectrum Plus, Two Stereo Speakers & Software: Compton's Encyclopedia, Media Vision,s Pocket Recorder/ Pocket Mixer/ Pocket CD, Wing Commander II, & Ultima Underworld.

Only $1769

AMS 486DX-33MHz Color Pro Notebook

Only $2659

- 4MB Ram Exp. to 8MB on-board
- 8K Internal Cache
- Built-in 1.44 Floppy Drive
- 8.5", 640x480 Screen w/256 Colors
- 80MB IDE Hard Drive
- 83 Key Keyboard

Standard Features:

- 1 Parallel Port / 2 Serial Ports
- 1 Ext. VGA/1 Ext. Keyboard Ports
- 100 Pin Expansion Slots
- Removable NICad Battery Pack
- AC Adapter/Recharger
- DOS 5.0 /Manuals/Free Carrying case
- 1 Year Warranty Service by AMS

AMS 486DX 33MHz Notebook

Only $2095

- 4MB Ram Exp. to 16MB on-board
- 8K Internal Cache
- 32 Grey-Scale Back-Lit Display
- 120MB IDE Hard Drive
- (210-340MB Available)
- Built-in 1.44 Floppy Drive
- 83 Keys, 12 Function Keys w/Numeric Keypad

Standard Features:

- 1 Parallel/ 2 Serial Ports
- 1 Ext. VGA/1 Ext. Keyboard Ports
- 100 Pin Expansion Slot
- Removable NICad Battery Pack
- AC Adapter/Recharger
- DOS 5.0 w/Manuals/FREE Carrying case
- 1 Year Warranty Service by AMS

TOSHIBA

SUPER FAST CD-ROM XM-3401B

* 200 MS, 330 KB/Sec
* SCSI CD-ROM
* Multi-Spin/Multi-Speed
* 256K Cache, Photo CD Comp

INTERNAL $485

EXTERNAL $585

Ordering Information:
Shipping and handling additional. Corporations rated 3A2 or better and Government accounts are accepted on a 30 net basis. C.O.D. orders over $500 add $10.00 special handling charges: Fill returns must have prior authorizations from our Customer Service Department (408) 245-5836. Fill returns must be in original packaging and include all warranty cards and manuals. Incomplete product returns, unauthorized returns and refuse shipments are subject to a 20% re-stocking charge. Fill prices and specifications are subject to change without notice. All trademarks belong to their respective companies. Not responsible for typographical errors.

HIQ

For Orders Call:

1-800-827-5836

NETWORKING

HiQ has the Problem-Free Solution to your networking wants and needs. With the Ultimate Server/Workstation, and MicroSoft's Workgroup Software, your company will have a reliable and powerful network running in 72 hours. HiQ provides you with expert technicians that have an average of seven years experiance...and they will do the job right the first time because Hi-Q has done hundreds of installations.

HiQ, the Specialist for Problem-Free Network Installation.

Since 1987, Hi-Q has set the standard for sales and service in the personal computer market place. With offices from California to Georgia, Hi-Q has the experience and knowledge to help you achieve your personal computing and networking goals. There are many companies that will sell you a computer, but only one that will back you up with technical support, quality equipment and good old-fashioned service. If you're looking for a computer or an entire Local Area Network, Hi-Q wants to help you make the job easy.

Call HiQ Today! **1-800 827-5836**

You've heard the Networking horror stories - systems that crash in the middle of projects, lost data - nightmares of all kinds. These stories, sadly, are true.... is there a solution to network problems?

Why You should buy the HiQ Ultimate Workstation

Pre-Configured Workstations
Just Plug In and Run
Free Network consulting service
On-Site Training Available
30-Day Money Back Guarantee
Warranty: One Year Parts
and Two Year Labor
- Cabling & Software Installation
Also Available

NOVELL
IBM
SMC
3Com
SCO
LANtastic
MICROSOFT

HiQ Ultimate Server/Workstation 433I System

- Intel 433DX-33 Processor
- 4MB RAM (70NS) Expandable to
- 32MB
- 64K SRAM Cache
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Windows Accelerator SVGA card,
- 16-Bit, 1024x768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced keyboard
- AT Desktop Case w/220W Power Supply
- Network Ethernet 16-Bit Interface Card
- FREE HI-Res Mouse/Windows
- 3.1/Workgroup and DOS 5.0 w/manuals

2 Users:	3 Users:	5 Users:
$3449	**$5119**	**$8379**

"Stress Free Networking Solution"

HiQ Ultimate Server/Workstation 425SX System

- Intel 486SX-25 Processor, 64K Cache
- 4MB RAM (70NS) Expandable to 32MB
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Windows Accelerator SVGA card,
- 16-Bit, 1024x768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced keyboard
- AT Desktop Case w/220W Power Supply
- Network Ethernet 16-Bit Interface Card
- FREE HI-Res Mouse/Windows
- 3.1/Workgroup and DOS 5.0 w/manuals

2 Users:	3 Users:	5 Users:
$3079	**$4559**	**$7459**

HiQ Ultimate Server Workstation 333DX/340DX System

- Intel/AMD 386DX-33/386DX-40MHz Processor, 64K Cache
- 4MB RAM (70NS) Expandable to 32MB
- 1.2MB and 1.44MB Teac Floppy Drives
- 170MB IDE Conner HDD w/32K Cache
- IDE controller 2H/2F
- 2 Serial, 1 Parallel and 1 Game ports
- Windows Accelerator SVGA card, 16-Bit,
- 1024x768 w/1MB RAM
- 14" SVGA Color Monitor 1024x768, 0.28dp
- 101 Enhanced keyboard
- AT Desktop Case w/220W Power Supply
- Network Ethernet 16-Bit Interface Card
- FREE HI-Res Mouse/Windows
- 3.1/Workgroup and DOS 5.0 w/manuals

2 Users:	3 Users:	5 Users:
$2849	**$4219**	**$6899**

HIQ

740 N. Mary Avenue,
Sunnyvale, CA 94086

(408) 245-5836
Fax: (408) 245-3108

NETWORKING ACCESSORIES:

* NE2000 Comp Ethernet Card 16-Bit w/10 BaseT, Coax	$85
* NE2000 Comp Ethernet Card 16-Bit w/Combo	89
* PS/2 Microchannel Ethernet Card w/10 BaseT, Coax	169
* Pocket Ethernet Adapter w/10 BaseT, Coax	169
* 8 Port 10 BaseT Concentrator	269
* 12 Port 10 BaseT Concentrator	499

*3Com, SMC, Intel and IBM Network Cards Also Available

Call For More Information

"Hired Guns" For Large And Small Companies

Companies, Such As Custom Software, Can Provide A Solution To Your Business' Specialized Needs

BY RICH GRACE

The computer market is nothing if not overwhelmed with off-the-shelf, shrink-wrapped applications for almost every conceivable job. Many companies, however, find themselves in need of highly specialized packages which prove difficult to secure in the mass market. Though there is an incredible array of obscure programs available—many advertised in the back pages of computer magazines—few of these turn out to have lasting value for the buyer. What happens if the buyer's requirements change? If their business expands?

In many cases, specialized commercial software lacks the flexibility that dynamic companies require to stay abreast of their changing needs. Unresponsive vendors and developers often present another obstacle. Custom Software, Inc. (CSI) is a company that attempts to fill a niche in the market for companies confronting such problems. In business since 1979, the company, founded by Sigmund Fidyke, has made a career of filling in the cracks which customers with specialized needs often slip through.

Using a large number of programming languages and both Macintosh and PC platforms, Fidyke's company has the flexibility and the programming talent to match the complex needs of its customers. CSI's programming expertise ranges from low-level assembly to high-level languages such as C and Pascal. Most of their bread-and butter work, however, is done in Database Management systems and languages (dBASE and Clipper, as well as Borland Paradox and Microsoft FoxPro). On the PC side, most work for clients is done with dBASE and the Clipper dBASE compiler.

Custom's customers include major corporate names such as Prudential Real Estate, TRW, Coldwell Banker, and Blue Cross. While these corporations can easily hire in-house staff to perform complex programming jobs, or call on any of the major Big Six accounting firms such as Arthur Andersen or systems integrators such as Perot Systems, or experts from vendors such as DEC and IBM, Custom Software has compiled an enviable track record by landing such clients and delivering cost-effective solutions to specialized problems. Whenever CSI creates a product for a customer, complete online help and documentation are a part of the package. "We provide a total solution, not just half of one."

Nor does CSI shirk the smaller companies. As we'll see below, Joe Dillon, president of Body Accounting, a physical fitness consulting company, has found Custom Software to be a valuable asset for his business.

THE MISSION

Interviewing Sigmund Fidyke (pronounced Fid-Kee) in Custom Software's comfortable, unpretentious "thinking parlor" offices in Irvine, California, one sees a pleasant, dark-haired man at home with both technology and people. We spoke at length about Custom Software's customers, technologies, and responsibilities in a comfortable meeting room.

> **"We have relationships with several small firms which are mutually beneficial. All of them understand how important it is to work together to give the customer the best solution for the money."**
>
> **Sigmund Fidyke**
> **Founder, Custom Software, Inc.**

What is Custom Software's mission? "We provide what we feel are excellent analysis and programming services, with a high level of concern and dedication to serving our customers." Mr. Fidyke amplified on this statement by saying, in response to a later question; "We specialize in long-term relationships with our customers... One-shot deals don't make for a successful company." It was observed by the interviewer that many consultants and free-lance programmers seem to specialize in one-shot deals, and that most people who hang out their shingles in this field usually fail within a few years, primarily for that reason.

Fidyke responded, "Yes, we're often called in to clean up messes other consultants have created when trying to do a job. We build a relationship with our clients over the long haul, and we do this partly by staying with our strengths—we're a development firm, not a marketing one." If you're in business for fourteen years, particularly in a tough, demanding, and constantly changing field, you must be doing something right in terms of customer satisfaction and maintaining a relationship with your existing customers. Clearly, CSI has managed to do that, while continuing to expand its base.

SERVING THE BIG GUYS

When asked what one of the biggest chal-

RESOURCES:

Custom Software, Inc.
18001 Sky Park South,
Ste. J
Irvine, CA 91714
(714)261-1188
Body Accounting
(714)733-1904
MacTools Deluxe
Central Point Software
Corp.
15225 NW Greenbrier
Pkwy. #200
Beaverton, OR 97006
(503)690-8090
Paperless 1
Pinnacle Micro, Inc.
(714)727-3300

Copyright © 1993 by Rich Grace. All rights reserved. Rich Grace is a free-lance and technical writer, and an enthusiastic user of PC, Mac, and Amiga platforms. He lives in Orange County. He can be reached on MCI Mail ID 484-6217.

lenges was that CSI has dealt with for a customer, Fidyke responded, "Well, we did a major project for Prudential Real Estate when they had just entered that market. We designed all the PC software that goes into every franchise office throughout the country.

"It was a big responsibility. All those real estate offices often based their judgment of Prudential Real Estate (our client) on our software product. We take our responsibility seriously, and Prudential had millions of dollars at stake. Technically, the job wasn't that difficult (thankfully!) but business-wise it was a real challenge to carry that job through." They did, and their software is still in use today at all Prudential's client sites.

How does a small firm like Custom Software compete against the big guns of the industry? Employing business alliances with other small firms in the area allows CSI to maintain their focus on what they do best, while affording clients access to all the services offered by the larger firms, and continuing to offer reasonable fees and consistent back-end support. "We have relationships with several small firms which are mutually beneficial. All of them understand how important it is to work together to give the customer the best solution for the money. Our cooperation isn't done by legal agreement, but with a handshake. They're noncontractual relationships, and all our partners prefer it that way, and it's proven very successful for us and for our customers."

CSI's business allies include a PC hardware system vendor which also handles Novell network reselling and installation, a PC UNIX firm which handles systems and software installation for 386 and 486-based UNIX systems, and a couple of dedicated software vendors whom CSI relies upon for robust accounting systems (using the Platinum accounting package) and medical billing software. Alliances allow CSI to maintain the flexibility of a small company ("We don't sell hardware, nor do we do a lot of other things. We focus on what we do best"), while offering the services companies so often require. "They allow us to fully compete with the Big 6 for training, network installation, UNIX systems, and so on. We have the large-company breadth of services and the small-company price."

WORKING WITH THE LITTLE GUY

Nor does CSI ignore the small businessman. Joe Dillon is a successful physical fitness consultant (he, too, has been in business since 1979, as president and sole owner of Body Accounting) with clients as diverse as the Newport Beach, Huntington Beach, and Hawthorne police departments; the Mission Viejo Nadadores; and the Stanford University Swim Team (including, at various times, Olympic gold medalists Janet Evans and Pablo Morales). For a number of years, Mr. Dillon was unable to find any commercial software packages that could serve his needs: "For years, I had to do all my customer evaluations in longhand—and manually type them up with a typewriter to put them in presentable form.

"Even with a conventional word processor, I couldn't get my work done in an efficient fashion. I had to do all my customer data analysis by hand, and I could never give my clients the comprehensive service I wanted to without a lot of headache and

WANTED: EXCESS INVENTORY
We Buy & Sell Excess Inventory • PC's & Related Parts
Hard Drives • Memory • IC's • Software • OEM Products
We Specialize In Asset Recovery

SEAGATE
40MB Drive
w/16-Bit Cont.
#ST250R
$99

PANASONIC
522
Ind./Int. 380ms
$259

MITSUMI
CD-ROM Drive
w/Int.
$199

MAC 14"
Color Monitor
1024x768 .28dp
$340
Great For Powerbook
640x480 $290

WE PAY BIG $$$ FOR EXCESS INVENTORY

SOUND CARDS
• SB Multimedia Card $75
• SB 16-Bit Card $100
• Gallant SC5000 $145

SONY
CD-ROM Drive
w/Int. #CDU-31A
$258

CD-ROM TITLES
-Adult
-Education
-Children
-Entertainment
-Application
-And Much More!

Strata Remarketing
"We cover the stratosphere of your Computer Needs"
46560 Fremont Blvd. #302
Fremont, CA 94538
Dealer Inquires Welcome

(510) 656-9848
Fax (510) 656-9891
Hours M-F 9:30-6 SAT by Appointment
We Accept Mastercard & Visa

--Since 1986

The Super Link

MON-FRI: 9AM - 6PM
CREDIT CARDS WELCOME

3537 Kifer Road. Santa Clara, CA 95051 Tel: (408)-733-2558 Fax: (408)-733-3890

Micronics VL-BUS SYSTEM

- * 4MB-70NS, exp to 64MB
- * 256K Cache
- * Maxtor 130MB HDD
- * Teac1.2 & 1.44 MB FDD
- * Micronics VL-Bus IDE Cont.
- * Diamond Stealth VLB w/ 1 MB Video Card
- * Viewsonics 6E Monitor
- * Fujitsu 4850 Keyboard
- * 2 Serial / Parallel
- * Dual Fan Mid Tower Case
- * 230W UL Power

486-33..$1865
DX2-50..$1965
DX2-66..$2095

MOTHERBOARD

VESA Local Bus Board

Micronics: w/CPU	
486-33 /256K	$729
486DX2-50 /256K	$830
486-DX2-66 /256K	$970
Orchid: w/CPU	
486-33 /256K	$585
486-50 /256K	$755
486-dx2-66 /256k	$830
TSL no CPU	
486-33 /256K	$135
486-50 /256K	$155
EISA 486-50/33 /256K no CPU	$229
ISA 486-50 /33/128K no CPU	$100
486SX-25 w/CPU	$275
386 SX-33 w/CPU	$99

386 - 486 BOARDS

*** Motherboard For ***
386DX - 33
386DX - 40
486SX - 25
486DX - 33
486DX - 50
486DX2 - 50
486DX2 - 66

w/ 256K Cache

$159

ACCESSORY

Cable (M/M, M/F, F/F)
6' 10' 15' 20' 50'
Dust Cover for All Tower Case
Cable Extension (Monitor,Keyboard, & 15' VGA Cable)
Monitor Filter, Diskette Box,
PS2 adaptor, Mouse pad,
Keyboard Drawer

SPECIAL

EPSON 386SX-16

- * 386SX-16MHz
- * 2MB RAM
- * 1.2 MB FDD
- * IDE Cont
- * Serial /Parallel
- * EPSON Keyboard
- * EPSON Case & Power

$275

ORCHID VL-BUS SYSTEM

- * 4MB-70NS, exp to 64MB
- * 256K Cache
- * Teac 1.2 & 1.44MB FDD
- * Maxtor 130MB HDD
- * Orchid VL-Bus IDE Cont.
- * Orchid VL-Bus SVGA Card
- * Viewsonic 6E Monitor
- * 2 Serial / Parallel
- * Fujitsu 4850 Keyboard
- * Dual Fan Mid Tower Case
- * 230W Power

ORCHID

486-33..$1799
486-50..$1975
DX2-50..$1955
DX2-66..$2045

VIDEO CARD

VESA Local Bus	
Orchid	$165
Diamond Stealth	$165
Genoa	$115
ATI w/ 2MB	$425

ATI Ultra Graphic /1MB w /Mouse	$259
Diamond Stealth w/ 1MB	$185
Diamond Speed Star 24X	$165
Orchid Fahrenheit w/1MB	$145
Paradise color SVGA /1MB	$72
Trident SVGAw/1MB	$59
Trident SVGA w/512K	$39
VGA w/256K	$29
MGP w/ Printer Port	$15

CASE

Dual Fan Full Tower 230W UL	$155
250 / 300W UL	$160/179
10 Bay Full Tower 230/300W	$109/133
8 Bay Full Tower 230/300W	$99/123
8 Bay Mid Tower 230W	$75
5 Bay Mini Tower 200W	$55
Dest top Case 200W	$75

POWER SUPPLY

300W UL for Tower	$69
250W UL	$59
230W UL	$49
230W UL PS-2	$45
200W UL XT Size	$45

BLK CASE, KB, & MOUSE

Black Full Tower 230W	$135
Mid Tower 230W	$119
Mini Tower 200W	$77
Black Keyboard 121 Soft	$41
191 click	$44
5100 Small	$39
Black Mouse	$17
Black Monitor 1024x768 .28dp Interlace\ Non-Interlace	$295/325

KEYBOARD

Omni Ultra	$95
Omni 101 /102	$65
Fujitsu 4700/4850	$45/32
Keytronics 101	$35
Maxi 101	$33
BTC 5339SX 101	$23
BTC 5100 Small Size	$36

Prices are subject to change without notice
Freight and labor are not refundable Including reject.

TSL BASIC SYSTEM

** Items included **

- * 4MB-70NS
- * Teac 1.2MB
- * Teac 1.44MB
- * Maxtor 130MB HDD
- * IDE 2F/2H Controller
- * 2 Serial / Parallel / Game
- * Mini Tower Case
- * 200W Power

486DX2-66 /128K Cache	$1189
486DX2-50 /128K Cache	$1079
486DX-50 /128K Cache	$1069
486DX-33 /128K Cache	$939
486SX-25	$779
386DX-40 /128K Cache	$669
386SX-33	$599

Options See Below Item

VESA Systems are available

MONITOR

Viewsonic 7E	$979
6FS	$545
6E	$345
5+	$495
5E	$395
4E	$295
Addonics NI 1024x768 0.28dp	$315
Addonics 1024x7680.28dp	$265
Morse 17" 1240x1024 0.26dp	$875

CONTROLLER

VLB IDE Cont	**$59**
IDE 4F/2H/2S/P	$39
IDE 4F/2H	$32
IDE 2F/2H/2S/P/G	$17
IDE 2F/2H	$12
DTC 3280 SCSI	$98
DTC 3280 4FDD Software	$49

I/O CARD

2S/P/G	$15
2S/2P	$22
2P	$17
Serial	$10
Printer	$9

MODEM

2400 B Modem	$32
2400/9400 Fax /Modem	$59
2400/9600 Fax/Modem Pocket	$119
9600/9600 Fax/Modem	$195
14400/14400 Fax/Modem	$210

MOUSE & TRACKBALL

Easy Mouse	$12
Logitech First Mouse	$37
Logitech Serial Mouse	$55
Logitech Bus Mouse	$65
Logitech Trackman	$75

CD ROM

Sony CD-ROM 31A	$249
Panasonic CD-ROM w/CBL	$249
Fusion Multi Media Kit with NEC EXT. CD	$375

Special

Cooling Fan
** $18 ** Only

****

Don't forget to put a Cooling Fan on your 486 System, and now is time to do it.

HARD DISK

IDE:	
40MB	$145
80MB	$179
105MB	$195
130MB	$219
200MB	$310
340MB	$560

FLOPPY DRIVE

Teac 1.2 MB	$50
Teac 1.44 MB	$44
Mounting Kit	$4

TAPE BACKUP

Colorado 120MB (DT-10)	$169
250MB (DJ-20)	$229
Tape	$19

PRINTER

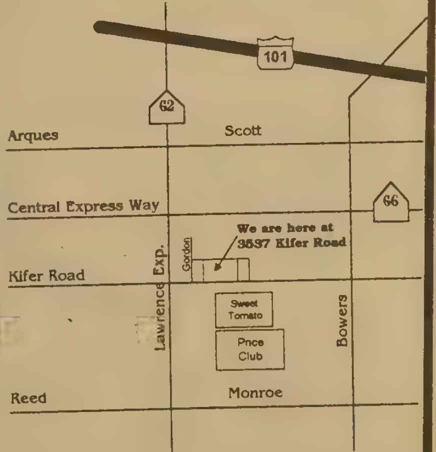
Canon BJ - 5	$195
Panasonic KX-2123	$189
KX-1124i	$209
KX-1123	$165

2nd Inventory 2yr warranty

RAM SIMM

1MB-70N	$32
1MB-60N	$34
4MB-70N	Call
4MB-60N	Call

We have moved
Come to visit our new location, and you will get 2% discount from your total purchase.
Good till 3/31/93



unnecessary work. Five or six years ago, I hired Custom Software to help me. They came over and interviewed me, and wrote a custom package to fit my requirements. I've had lots of positive feedback from my clients, and my work is much more efficient and gives the client much more value." Instead of having to struggle with handwritten or conventional word-processed documents, Mr. Dillon generates a 60–75-page report for every client prescribing a complete exercise and diet program from his PC. In fact, Sigmund Fidyke has even become a client of Mr. Dillon's, and has lost 30lbs.—just in time for his twentieth year high school reunion.

COMMERCIAL SOFTWARE PROJECTS

In the course of pursuing business as a development house, CSI has done significant work in commercial software packages. Central Point Software is a major developer of utility programs for both the Macintosh and PC environments (with MacTools and PCTools, respectively). Recently, Central Point called upon CSI to help them develop a new utility for the Mac platform. Fidyke declares:

"On the technical and commercial side, we created a new disk optimizer for the Mac. It was a subject which we had to do a lot of research on. We had to study all the existing disk defragger algorithms and create a new one to help us make a program which was both very safe and very fast. It was a real technical challenge for us. More than that, defraggers have a lot of trouble with very full disks—they use some empty space for caching data. We spent a lot of time evaluating current technologies, and came up with what I think was a good solution. Our disk optimizer is in the MacTools Deluxe package for the Macintosh." In fact, the disk optimizer has been upgraded for the current release.

Another major package bearing CSI's imprint is Pinnacle Micro's Paperless 1, a self-described "paperless imaging system" running in the Windows environment. The Paperless 1 is a low-end, small-scale hardware and software solution (costing $6995) for businesses that deal with large amounts of paperwork and wish to keep it indexed electronically, and to keep images of the paperwork without requiring massive filing cabinets and storage room. It's an application that is often used by financial institutions on a large scale, which has been made accessible to smaller businesses by Pinnacle. The full system includes an optical read/write disk drive, a full-page scanner, and the control software.

CSI's role in creating the imaging system was to produce the entire software package. Features of the software include document scanning, template design for special document types, a System Administrator application that enables password control and access privileges for individual users, and an electronic mail feature that allows the attachment of scanned pages or documents to messages. The entire package occupies a single 1.44MB floppy. CSI's design of the software employed simplicity and ease of use, eschewing a burdensome array of features for the harried user to navigate. CSI is also nearing completion of the Macintosh version of Paperless 1.

CODING FOR THE FUTURE

One trend that CSI's success and existence seems to point to is the increasing readiness of software development houses (and technology companies in general) to "farm out" much of their development to outside contractors and other programming houses better suited to deal with specialized applications. Custom Software has stayed in business for fourteen years following a disciplined, competently managed philosophy of staying with its strengths as a development house, while successfully competing with some of the biggest guns in the industry.■

Join the Internet!

Portal, the Bay Area's premiere Internet services provider, gives you unparalleled access to the Internet. Excellent value, the highest possible quality, and top notch customer support make Portal your gateway to the Internet.

SLIP/PPP

The Bay Area's *only* low-cost slip/ppp service lets you connect your pc, mac or UNIX machine to the Internet. Take full advantage of the Net with services like mail, ftp, telnet, and irc.

UUCP

Use the Portal UUCP Connection™ to get full UUCP access. We'll provide mail forwarding, customized news feeds, a domain name, documentation, and everything else you need.

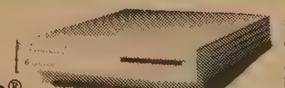
Shell

Portal Shell™ accounts let you use the power of the UNIX shell to access the Internet, as well as network email, The Portal Archive™, Usenet newsgroups, and extensive software libraries. Plus, the menu-based Portal Online™ gives you an easy-to-use interface.

PORTAL

Portal Communications Company 20863 Stevens Creek Blvd. Suite 200 Cupertino CA 95014
408.973.9111 (voice) 408.973.8091 (data) 408.725.1580 (fax) cs@portal.com (email)

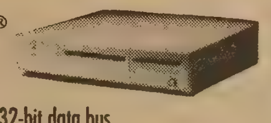
Authorized Dealer



Apple® Macintosh® LC III 4/80
- 25MHz 68030 Processor - 32 bit data bus twice as fast as LC II
- 4MB exp. to 36MB
- Built in color support up to 16" color displays
- RAM Disk for fast data access

Monitor sold separately

$1199



Apple® Macintosh® Centris® 610 4/80
- 68040 Processor - 32-bit data bus up to twice as fast as IIci & IIvx
- 4MB RAM exp. to 68
- Built in color support for all Apple® displays
- Optional Onboard Ethernet
- Ram Disk for fast data access

Keyboard & Monitor sold separately

$1575

Apple® Macintosh® Color Classic® 4/80
- 16MHz 68030 Processor
- 4MB RAM exp to 10
- 10" Color display w/256 color, upgradable to thousands of colors
- Compact & portable

Keyboard sold separately

$1313

Apple® Macintosh® IIVX 5/80	$1595
Apple® Macintosh® IIVX 5/80 w/CD ROM	1960
Apple® Macintosh® IIci 5/80	1945
Apple® Macintosh® Quadra™ 700 4 MB RAM	2065
Apple® Macintosh® Quadra™ 880 8/230	2750
Apple® Macintosh® Quadra™ 950 8 MB RAM	5175
PowerBook Duo™ 210 4/80	1999

PowerBook Duo™ 230 4/80	$2320
PowerBook™ 145 4/80	2189
PowerBook™ 160 4/80	2450
PowerBook™ 165C 4/80	2999
Apple® Stylewriter® II	305
Apple® Personal LaserWriter® NTR	1465
LaserWriter IIg	2152

Apple® LaserWriter® Pro™ 600	$1655
Apple® LaserWriter® Pro™ 630	2235
Apple® Macintosh® LC III 4/80	1199
Apple® Macintosh® Centris™ 610 4/80	1575
Apple® Macintosh® Centris™ 610 8/230 w/CD-ROM	2450
Apple® Macintosh® Centris™ 650 4/80	2280
Apple® Macintosh® Centris™ 650 8/230 w/CD-ROM	3330

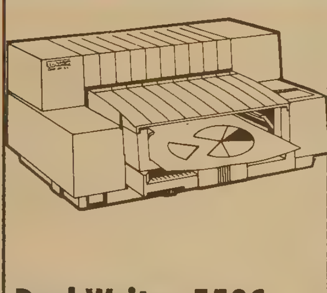
Apple, the Apple logo, Macintosh, Classic, Stylewriter, and LaserWriter are registered trademarks of Apple Computer Inc. PowerBook, Macintosh Quadra, Powerbook Duo, and Macintosh Centris are trademarks of Apple Computers, Inc.

HEWLETT PACKARD
Authorized Dealer

HP PRINTERS

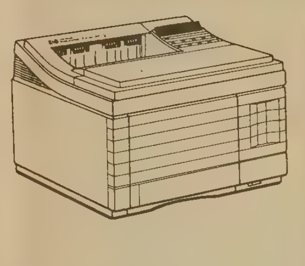
HP DeskJetPortable	$375
HP DeskJet 500C	485
HP DeskJet 550 C	675
HP DeskWriter 550 C	675
HP DeskWriter C*	435
HP DeskWriter*	325
HP DeskJet 500	375
HP LaserJet IIP Plus	770
HP LaserJet IIIP	CALL
HP LaserJet IIIP Postscript® w/Appletalk®	CALL
HP LaserJet IIID	2199
HP LaserJet IIIsi	3095
HP LaserJet IIsi PostScript® w/AppleTalk®	CALL
HP ScanJet IIc	CALL
HP ScanJet IIp	CALL
HP Fax 310	CALL
HP Fax 200	CALL

**After rebate*



DeskWriter 550C Printer
- Affordable 300dpi black and color printing on plain paper, transparencies, glossy paper, and envelopes
- Easy integration with Mac and all Mac applications
- 35 scalable fonts
- 3 Year limited warranty

$675

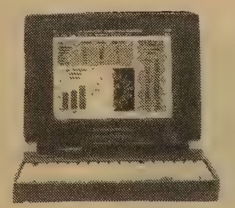


HP LaserJet 4

AppleTalk® compatibility with optional interface.
Dependable HP performance.

CALL

COMPAQ
Authorized Dealer



Compaq Contura 3/25
- 386SL
- 4MB RAM
- 84MB Hard Disk
- DOS
- Windows
- Winworks
- Trackball
- PFS

$1555

Every Prolinea bundled with DOS, Windows, Mouse!

Prolinea 3/25S M84, Bundle	$912
Prolinea 3/25S M120, Bundle	975
Prolinea 4/33 M120, Bundle	1575
Prolinea 4/33 M240, Bundle	1765
Prolinea 4/50 M120, Bundle	1895
Pagemarq 15 PPM	3099

Every Contura bundled with DOS, Windows, Trackball PFS: Windows Works!

Contura 3/20, M84, Bundle	$1275
Contura 3/25, M84, Bundle	1555
Contura 3/25, M120, Bundle	1745
Contura 3/25C, M84, No PFS	2075
Contura 2/25C M120, No PFS	2265
Deskpro 4/251S M84, Bundle	1670
Deskpro 4/251S M120, Bundle	1775

AND MORE...

SPECIALS

NEC 20" XL Monitor (Demo)	$695
Tape Backup 2.2 GB	899

NEC

NEC Laser Model 95 Apple Talk, Postscript Level II	$1399
3FXG-15" Color	615
4FG-15" Color	755
5FG-17" Color	1279
6FG-21" Color	2295

TOSHIBA

T1850 80MB, DOS, Windows, Mouse	$1245
T1850 Satellite, 25MHz	1418
T1850 120MB Satellite, 25MHz	1625
T1850C 80MB Bundle	2072
T1850C 120MB Bundle	2299
T3300SL 120MB	2066
T4500C 120MB	3675
T4500SX 80MB	2169
T1800 60MB Satellite	1030

OKIDATA®

Okidata ML 320	$295
Okidata ML 321	414
Okidata ML 380	215
Okidata 393 Plus	879
Okidata 393C Plus	939
Okilaser 400	585
Okidata ML 590	419
Okidata ML 591	569
Okidata 810	999
OkiLaser 830	1232

EPSON

Epson LQ-570	$239
Epson LQ-870	439
Epson LQ-860	557
Epson LX-1070	355
Epson LQ-1070	377
Epson LQ-1170	605
Epson FX-870	266
Epson FX-1050	390
ActionLaser II	685
Epson EPL 800	1078

ComputerLand of Hayward

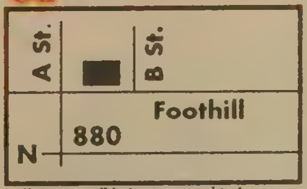
BUSINESS TO BUSINESS • • PERSON TO PERSON

22540 FOOTHILL BLVD. HAYWARD, CA 94541

Tel: 510/538-8080

Hours: M-F 8:30-6 Sat 11-5 Prices reflect a cash discount.

At Computerland of Hayward we are dedicated to serving you, our customers. You can depend on us for quality service, same day and 24-hour service, on some of the products we offer.



Not responsible for typographical errors.
Prices subject to change without notice.

Selcor
DIRECT
1600 S. Norfolk, Suite 300
San Mateo, CA 94403
(800) 777-7058
(415) 578-1165 FAX

There's An EXP Dealer Near You!

GreyStone Technology
30A Knowles Dr.
Los Gatos, CA 95030
(408) 866-4739

BCSA Computers
8A Commercial Blvd.
Novato, CA 94949
(415) 883-7392

Micromatics
3442 De La Cruz Blvd.
Santa Clara, CA 95054
(408) 970-8566

Dealer Incentive Program Available for Qualified Resellers!

If you are a reseller looking to enhance your product line, take advantage of Selcor Directs' value added reseller program including regional advertising and technical support and favorable

Toll Free!
800
777-7058
Dealer Info!

Selcor Direct's
PRODUCT SPOTLIGHT!

EXP

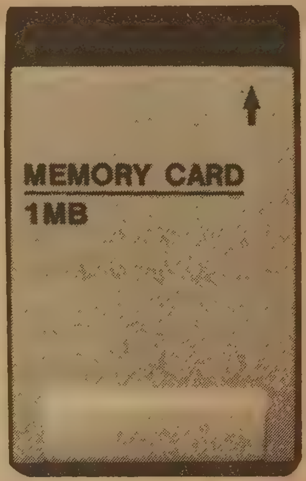
Selcor Direct's Monthly Spotlight to the Best Values in Silicon Valley!

Need More MEMORY for Your Notebook? EXP Offers the Best Value, Affordably Priced, Solution Available Today.

EXP and Selcor WILL NOT BE UNDERSOLD! MEMORY MODULES FOR ALL NOTEBOOKS & LAPTOPS.
1 TO 16 MB MEMORY CARDS AVAILABLE NOW FOR ALL BRANDS!
Prices as low as

$39

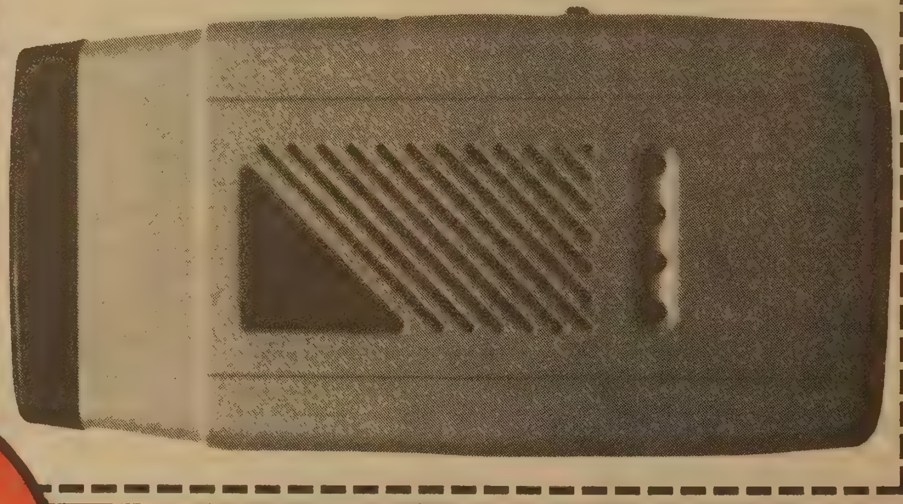
TOSHIBA • AST • COMPAQ
HEWLETT PACKARD
APPLE • MOST CLONES...



Try Cutting This Picture Out and Placing It In Your Pocket.

(Modem shown at actual small size.)

Nu Laser



This tiny pocket size fax/modem is a high performance send and receive fax with full duplex 2400bps modem. As a result of comprehensive research and engineering, it will support most of today's popular communications software.

Package includes:
- BitCom Fax & Data Software
- Auto-dial, auto-answer, auto-speed selection
- Built-in speaker with volume control
- Four phone number memory ea. up to 33 characters
- LOW POWER CONSUMPTION
- 9600/7200/4800/2400bps synchronous communication
- Receiving and sending a fax in the background
- One step convert and send
- FCC Class B approved

Only $69.95 reg. $119

High Speed Communications Center!
14.4K Bis Data/Fax Modem
$189.00

Selcor Direct
"We're Looking For a Few Good Dealers"
(800) 777-7058

Exploring The World On The Internet

A Network Of Networks, The Internet Connects Computers And Computer Users At Universities, Research Centers, Government Agencies, And Commercial Enterprises From Around The World.

BY PETER JOHN HARRISON

Most computer users have used, seen, or at least heard of one or more of the many online services. Prodigy, CompuServe, America Online, and other online services can open up a new world to you if you have a computer and a modem, but mixed in with these services is one network that can offer you the world: The Internet.

The Internet is more than just an online service. It is a network of smaller networks connecting computers and computer users at universities, research centers, government agencies, and commercial enterprises from around the world. Thousands of "host" computer systems in more than forty nations are connected to the Internet; the Internet is easily the largest network or computer service in the world.

Given its size, the resources available through the Internet boggle the imagination, and it is the magnitude of the Internet that makes it so interesting. Name a science, profession, hobby, personal interest, or obsession: it's probably discussed, researched, deified, and demonized on the Internet.

Individual users and companies of all sorts use the Internet. The Information Store, a small San Francisco-based company that provides copies of documents such as magazine articles and patents, uses the Internet to correspond with clients and to help it locate sources for the documents its clients want. SySTEMix, a Palo Alto biotechnology firm used the Internet to search for candidates for job openings. Microsoft uses the Internet as a way to keep in touch with its end-users, and provides Internet email addresses to all its employees. I use the Internet almost every day to keep in touch with friends and colleagues and to research network problems. Mikhail Gorbachev is said to have used Internet email to keep in touch with supporters when the former U.S.S.R.'s "old guard" staged an abortive coup in 1990.

The Internet offers something for just about everyone, and unlike many of the commercial networks, most Internet resources can be accessed at little or no charge.

Like most electronic services, the Internet has discussion groups, called "newsgroups," where users ask for advice, gossip, and exchange professional and personal insights. Newsgroup topics range from job postings (with several topics covering job opportunities by region and discipline) to information on immunology research (bionet.immunology) and astronomy (sci.astro). I sold my old clothes washer and dryer through an ad in ba.forsale newsgroup. Almost whatever your interest, there's probably a newsgroup that covers it, even if that interest is as arcane as witchcraft or as tawdry as sex.

There are also "mail groups" that distribute information to a more restricted audience and may have a more defined focus. Through "list servers" people interested in a particular topic can "subscribe" to receive articles of interest by email. Any Internet user interested in receiving a list of Internet access providers can request a copy of "PDial" (send email with the subject line "Send PDial" to info-deli-server@netcom.com).

If you're interested in learning more about the Cold War, you'll want to use the "ftp" (File Transfer Protocol) program to download files from the Library of Congress' "Soviet Archive," a collection of documents from the former Soviet Union with a different perspective on topics like the Cuban Missile Crisis and the Chernobyl disaster (pub/soviet.archive at seq1.loc.gov). Using "ftp" you can also download thousands of different computer programs; Novell, for example, has archives of documentation, device drivers, and system updates for their network operating system (ftp.novell.com).

You can even log on to distant computers through the Internet. Using a program called "telnet," sun worshipers and ski buffs alike can find out what the weather is like at their favorite US or Canadian resort by accessing

RESOURCES OFFERING INTERNET CONNECTIONS:

a2i communications
(modem connection; login as "guest")
(408)293-9010

DIAL n' CERF or DIAL n' CERF AYC
1-800-876-2373

HoloNet
(510)704-0160

The John von Neumann Computer Network
1-800-35-TIGER

Netcom Online Communication Services
(408)554-UNIX

The Portal System
(408)973-9111

The Whole Earth Lectronic Link (The WELL)
(415)332-4335

> **Given its size, the resources available through the Internet boggle the imagination, and it is the magnitude of the Internet that makes it so interesting.**

Copyright© 1993 by Peter Harrison. All rights reserved.

Peter Harrison, a San Francisco-based data communications and connectivity specialist, can be reached via Usenet (peterh@well.sf.ca.us) or CompuServe (74017,1716).

the Weather Underground (port 3000 at madlab.sprl.umich.edu). If hard research is your life, you can search the University of California's electronic card catalog (melvyl.ucop.edu).

O.K., so how can you get onto the Internet? There is no "Internet Inc." to advertise in *MicroTimes* or the Yellow Pages. Internet access is provided, instead, by other organizations that already have some form of access, and the level of service provided by these companies varies.

Some firms, like CompuServe and MCI Mail, can send and receive email (and mail groups) from the Internet, but little else. At the other end of the spectrum are companies that provide "host" connections to the Internet via a leased phone line. In the middle are companies that will let you dial in and access all the features of the Internet through a terminal connection to their own Internet host (for a list of some vendors offering these kinds of connections, see Resources sidebar).

Thousands of "host" computer systems in more than forty nations are connected to the Internet; the Internet is easily the largest network or computer service in the world.

With so many tools and resources available through the Internet, you might need a little help to get started. If you don't know anyone willing to help you learn, consider buying a copy of *The Whole Internet User's Guide and Catalog* by Ed Kroll ($24.95 from O'Reilly & Associates); its a well-written guide any new user and many old Internet hacks will find interesting and useful.

Perhaps the biggest advantage of the Internet—or any electronic network—is that it brings people together. People like me, who often work from home, can develop "office" friendships that won't interrupt work while the modem's off. People who need to keep in touch with others within their profession can touch bases with colleagues downtown and around the globe. People who ordinarily wouldn't talk to one another because of differences in race, sex, creed, or social status converse as peers through "The Net"; one of my friends used to "talk" online with the late King Olaf of Norway.

So, whether you're looking for a research tool, a way to make new friends, or just a place to meet royalty, the Internet is the place to be.■

INDUSTRIAL PC SOLUTIONS

19" RACK MOUNT SYSTEM
PRICE IS BASED ON THE CONFIGURATION YOU REQUIRE

19" RACK MOUNT ENCLOSURE
• 20 MODELS, UP TO 20 SLOTS
• UP TO 8 DRIVE BAYS

8 SLOT PC BUS CAGE
•8 SLOT ISA BUS PASSIVE BACKPLANE
•BUILT IN 8 OHM SPEAKER

INDUSTRIAL PC DISKLESS ENCLOSURE
•6 SLOT PASSIVE BACKPLANE
•30 CFM FILTERED COOLING FAN
•95W POWER SUPPLY

MONITOR ENCLOSURE
WE CARRY MONITOR ENCLOSURES FOR MOST 12" OR 14" MONITORS.

RACK MOUNT KEYBOARD
FULL TRAVEL KEYBOARD
1 UNIT HIGH (1.75")

SINGLE BOARD COMPUTERS
SINGLE BOARD w/ON-BOARD MULTI I/O
486DX2-50,33
486DX-50/33, 386DX-33
386SX-25, 288-16 (HALF SIZE)
(HALF SIZE)
ALL CPU BOARDS w/USERS MANUAL, IDE HARD DRIVE CABLE, FDD CABLE, PARALLEL PORT & KEYBOARD ADAPTER

PASSIVE BACKPLANE BOARD
ALL 16 BIT BACKPLANE BOARD
•3, 4, 5, 6, 8, 12, 14, 18, 20 SLOT
•14 SLOT SEGMENTED 6,4,4
•18 SLOT SEGMENTED 5,4,4,5
•20 SLOT SEGMENTED 5,5,5,5

RACK SYSTEM W/KEYBOARD AND MONITOR
•MONOCHROME OR 10" VGA
•10.5" X 19" X 24"
•MOTHER BOARD OR 8 SLOT PASSIVE BACKPLANE BOARD
•5 HALF HEIGHT 5.25" BAYS

RAM/ROM DISK
•HIGH CAPACITY RAM/ROM DISK
•SINGLE DRIVE RAM/ROM DISK

Warranty includes 1 year parts and labor.
Prices subject to change without notice.

J & K TECHNOLOGY
43224 CHRISTY ST.FREMONT, CA 94538
TEL: 510-226-9484 FAX: 510-226-9482
MON.-FRI. 8AM-6PM SAT 10AM-4PM

NETWORKING... OVERNIGHT!!

With Our Pre-Configured Systems, Your Network Installation Will BE An Overnight Success!

SOME OF OUR SATISFIED CUSTOMERS!

*FMC Corporation	*University of Florida
*Procter & Gamble	*University of Miami
*Lockheed Missile	*San Francisco State University
*Seagate Magnetic	*U.S. Navy Command
*Bank Of Pleasanton	*University of Michigan

*Plus Many Others

3Com

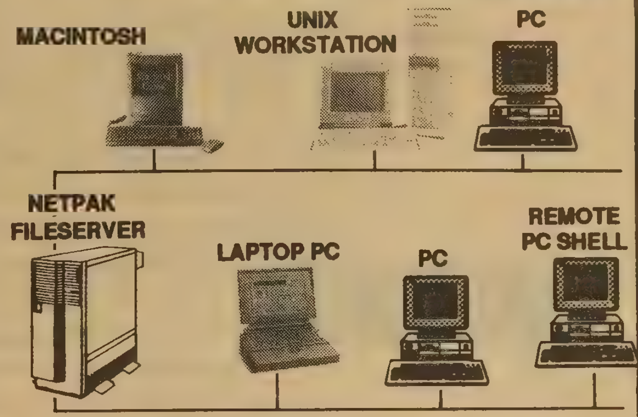
digital™

SCO

LANtastic™
ARTISOFT INC.

intel

Novell Gold Authorized Reseller



MAKE A SMART BUSINESS DECISION!

Plug In And Run! **You Can't Do Anything Wrong With Our Pre-Configured System.** By Our Experienced Staff, Your Network Will Be Built, Configured, Software Loaded, Cabling Sized To Your Exact Needs and System Completely Tested Before It Goes To Your Installation Site. You Would Only Spend Your Very Valuable Time On Your Productive Applications. **So Call M.W. Computers Today And Find Out How We Can Help You Make A Smart Business Decision!** Optional Installation and Custom Configuration Are Also Available.

PRE-CONFIGURED NETWORK BUNDLES
Call For Latest Prices & Custom Configuration & Upgrade

Network System	Server/Workstation	Workstations
250 User $119,955	486-33MHz	386SX-25MHz
	4MB RAM	1MB RAM
100 User $ 66,995	1.2 & 1.44 Teac Dr.	Serial/Paral Pts
	120MB Hard Disk	Ethenet Card
50 User $ 34,565	Ethernet Card(10M/s)	Monitor
	1:1 Hard Disk Card	Monitor Card
10 User $ 8,325	2 Serial 1 Paral Ports	Network Cable
	Monitor & Card	Novell
5 User $ 4,555	Tape Backup Dr.	Netware Software

SUPER SERVER
CALL FOR PRICES & CONFIGURATION

486, 66, 50, 40, 33MHz EISA or ISA
*630MB Hard Disk 16ms *32MB
* 1.2 & 1.44MB Teac Floppy drives
* Serial/Paral Ports *Monitor & card
* Network Card * Netware Software

SUPER WORKSTATION
CALL FOR PRICES & CONFIGURATION

486, 66, 50, 40, 33MHz EISA or ISA
* 4MB Installed * Network Card
* SVGA Monitor and SVGA card
* Network card * Serial /Parallel

MW
COMPUTER

- **We only use the most reliable products**
- **We run thoughtfully 72 hours burn-in**
- **Our lowest prices policy would save you money like hundred thousands of other customers**
- **Our staffs are committed to serve you**
- **Corporate PO are welcome**
- **Prices on ad is based on cash prepaid only**
- No surcharge for COD, cash & credit card
- **Price, availability subject to change w/o notice**
- **UPS nationwide daily, buyers pay freight**
- **Not responsible for typo errors**
- **Manufacturing personal computers since 1986, A California Corporation**

M. W. COMPUTER
A Technology Manufacturer
TEL: (510) 659-8812

46713 Fremont Blvd
Fremont, CA 94538
FAX:(510) 659-8526
Mon-Fri: 8:30-5:30 PST

CARDS/HUBS

Ethernat 10Base T 16Bit	$135
Ethernet 16 Bit card cx	$120
Ethernet 8 Bit card coax	$ 90
Arcnet 16 Bit card coax	$ 75
Arcnet 8 Bit card coax	$ 55
Arcnet 16 bit twist pair	$ 80
Arcnet 8 bit twist pair	$ 60
Ethernet 10 port 10BT	$570
Ethernet 8 Port 10BT	$425
Ethernet 5 Port 10BT	$325
Arcnet 8 pts Active Hub	$195
Arcnet 4 pts active Hub	$ 95

Network Accessories

NOVELL Netware	$CALL
UPS 400W	$320
UPS 600W	$410
UPS 900W	$640
Tape Backup Dr. 120MB	$225
Tape BackUp Dr. 250MB	$270
RG58/RG62 BNC Crper	$ 75
RJ-45 Twist Pair Criper	$ 50
50 or 95 Ohm Terminato	$ 5
Arcnet Passive Hubs	$ 30
Network FAX Gramma	$765
CDROM NEC Int	$635
15' or 25' assembled cable	$ 20

All The Years Combine:

UNIX And Your Actual Life

BY BENNETT FALK

UNIX

Some twenty-three years after its initial creation, UNIX has evolved into the standard operating system for multiuser, multitasking computers, particularly those that are linked in networks. This is a nice thing to say, but it is probably meaningless, in part because like so many other things, UNIX isn't UNIX anymore either.

The commercial success of UNIX has always depended on its adaptability to new developments in both hardware and software design. Now, as in the early 1980s, hardware vendors do a brisk business offering proprietary implementations of UNIX that show their hardware off to good advantage, but the enterprise of extending UNIX in this way is notoriously trendy.

Last year or the year before, the fate of UNIX seemed to depend on its user interface.

The individual user is unlikely to notice if the disks are striped or if there are eight, sixteen, or thirty-two CPUs serving the user community.

The general idea was that no operating system that failed to deliver the convenience of a personal computer could possibly gain widespread acceptance. But the emergence of client/server-based user interfaces (X Windows and OpenLook come to mind) established the possibility of a user-friendly UNIX interface at least comparable to the window/mouse/icon-based interfaces on personal computers.

With user interface issues apparently under control, the pendulum has swung, and the future of UNIX seems now to depend more on its ability to do the things that impersonal computers do. The trendy issues in the UNIX marketplace are the arcane things that make UNIX-bearing computers competitive with bigger, more costly systems: multiprocessor support, innovative disk storage strategies, and fault tolerance.

These are trends aimed at satisfying the corporate community's need for a better price/performance ratio. They are not trends that will have much impact on individual users of UNIX. The individual user is unlikely to notice if the disks are striped or if there are eight, sixteen, or thirty-two CPUs serving the user community. Indeed, the success of UNIX and the happiness of the individual UNIX user are about to diverge.

Copyright © 1993 by Bennett Falk. All rights reserved.

GETTING PERSONAL WITH UNIX

This probably means that now is a good time to think about what it is that makes using UNIX worthwhile. Personally, I tend to value the discovery of Pig Latin and palindromes over throughput and MTBF (Mean Time Between Failure). Others will relish the opportunities UNIX offers for communicating with other people through electronic mail, the Net News, or just a local area network.

But by far my most satisfying UNIX project of the last eighteen months or so is a journal, a low-tech database in which to practice writing and record the events of one or more actual people's lives.

Years ago, it seemed that the Mail program might be the ideal vehicle for managing such a project. Entries could be saved in mail folders, nicely dated and organized in some intuitively satisfying way. But it was too easy to forget to send mail frequently, and too difficult to remember what organization of folders was intuitively satisfying the last time an entry was made.

The whole project languished until I received a copy of Herb Greene's *Sunshine Daydreams*, a daybook that has lots of nice pictures of the Grateful Dead and doesn't have anything at all to do with computers. It's a book that is also blissfully indifferent to years and days of the week. It simply lists the days of the year, from January 1 to December 31 (omitting February 29), and for each day provides a space to record appointments, reminiscences and the like. It could, in fact, be used over and over again for years until the daily spaces are filled up.

Now this book is a wonderful thing, but it is wasted on those of us with poor handwriting who never joined the "Eon-at-a-Glance" pocket calendar set. However, it's an interesting model of something that could be done on a computer.

Take a filesystem, preferably one that could be installed on a removable disk. In the root directory of this filesystem, create a directory for each month, and in each directory, create a file for each day of the month. It is helpful to give each file a name that identifies the month and day it represents (like "01_january"). It is also beneficial to put the month and day at the beginning of each file.

Once the files and directories are set up, simply take note of the date, bring up the file for that date in the editor of your choice, and write down what happened. Prefacing each entry with the year and the day of the week is probably a good idea. Eventually, recollection takes over and you make entries for things that happened in the past, as well as current events. The UNIX "cal" command is helpful for discovering the day of the week for a past date. The most challenging design decision to be faced is whether the entries for a single day should be in ascending or descending chronological order.

Maintaining a journal in this way values coincidence over continuity. Someone willing to read carefully can still discover what happened over several consecutive days, but it does take some effort. Coincidence, on the other hand, soon becomes apparent. You learn with some surprise, for instance, that you fell off your motorcycle and broke your leg on the same day that, fifteen years earlier, you proposed marriage, or that you've been depressed on January 17th for two years in a row. The things that were noteworthy last year are curiosities now: does it really matter that you learned the difference between "impassable" and "impassible" on February 9 and do you still remember the difference? What obscure comfort is there in knowing that Rudolf Nureyev and Dizzy Gillespie died on the same day?

There is no entry in this journal for the exact day on which the UNIX trend pendulum began to swing from personal issues to impersonal issues.

The project is extensible in many ways, using other facilities offered by UNIX. Those jealous of their privacy could use "vi -x" to encrypt files in the journal, a strategy that works as long as you don't forget the encryption key. The beginning and ending of each entry could be flagged to allow extraction of individual entries with awk or sed. A permuted index could be created. The Source Code Control System (SCCS) could be used to log changes to the individual files, and keep a record of when entries were made. (Using SCCS might make it difficult to keep the journal on a removable disk. Indeed, pooh-poohing the user impact of disk striping may have been premature.) ■

UNIVEL™
A Partnership of Novell and USL

SBT® CORPORATION

Novell Authorized Reseller

SCO AUTHORIZED RESELLER™

SunSoft
A Sun Microsystems, Inc. Business

JUMP

JUMP MICOSYSTEMS, INC.

NETWORKING SPECIALIST

INTERLINK • MULTI-PLATFORM • OFFICE AUTOMATION

We Specialize in High-Technology and Office Automation Solutions!

- Novell Network Design, Cabling, and Installation
- Novell authorized Enterprise CNE
- Hardware Configuration and System Integration
- SBT Accounting Software Installation
- SCO Unix Operating System Installation
- PC X-window and PC/TCP Connection
- Development of Relational DataBases
- TCP/IP communications
- GUI and X-Window Graphics Products
- Interlink Specialist for IBM-UNIX

NOVELL and Networking Products

Netware Lite	$69
DR DOS 6.0 (Network DOS from Digital Research)	69
Netware Lite w/DR DOS 6.0	89
LANtastic AE-2 Ethernet Starter Kit /Adapter	495/219
LANtastic A2MBPS Starter Kit /Adapter	365/142
Netware V2.2 (5/10/50/100)	569/1269/2544/3818
Netware V3.11 (5/10/20/50/100)	697/1588/2226/4995/6995
LAN Workplace for DOS (TCP/IP Connection) (1/10 users)	299/1329
Netware for Mac (5/20/100 Users)	359/599/1995
Netware Upgrade /All Versions	Call for Details Special
Lanterm Netware monitor Ltd. /Ultd./LSM	2495/4495/4995
Multi Protocol Router	995
Netware E-Mail Global Messaging 10/50/100/250	995/2795/4795/6995
Netware MHS Personal 10/50/100/250	99/295/695/995/1595
Netware Wan/Link (PPP 12000-2.048Mbps, X.25 64K bps)	1295
Netware for NFS /NAS V1.2 /FTAM	4995/2395/4995
Netware for SAA 16/64/128/254 sessions	1995/5995/8495/9164
Microdyne Async. Comm. Server(4 Port 10 Base2/10BaseT/Token Ring/ 8pt 10Bs/10BT/ Token Ring)	6599/6599/6995/9895/9895/10,995
Microdyne Netware Access Server (10Base2/ 4Port)	6599

Netware-Ready Ethernet Cards

NE-1000/ Compatible (10BaseT or Coax)	$99/76
NE-2000/ Compatible (10BaseT or Coax)	163/129
NE-3200A /Microdyne 32Bit EISA Ethernet	699/621
3COM 3C509 Etherlink III (10BT/Coax) 5Pack	158/688
3C503 Etherlink II (10BT/Coax) 5pk	250/213/995/887
3C503-16 Etherlink II (10BT/Coax) 5pk	199/187/735/799
3C507 Etherlink/16 (10BT/Coax) 5pk	336/299/1390/1339
3C579 Etherlink III EISA (10BT/Coax) 5pk	299/1149
Gateway WINIM+ /Microdyne WINIM+ Adapter	699/6990
Novell Sync V.35+ /Microdyne V.35 Adapter	999/595

Bridges, Concentrators, HUBS and Repeaters

Microdyne 10BT Concentrator, 8Port w-AUII Port	$399
Microdyne 10BT Concentrator, 8 Port w-BNC Port	435
Microdyne 10BT Concentrator, 16 Port w-AUI&BNC	698
10 BaseT Repeater 12RJ45+BNC+AUI; 8 Port	519/259

SynOptics

Premises Concentrator 3000N 12 slots Enet /3000NT Enet & Token Ring/ 3000 Enet, TR & FDDI	$1956/2382/3831
3030 Department Concentrator 4-Slots	827
Lattislink 10BT Concentrator 2800, 12 Port	772
LattisHub 2803/2804/2813/2814	1005/1248/2302/2063
Enet Ntwk Mngt Modl 3313AA/3314A	2552/2893
Token Ring Mngt Modl 35133/3513A	2978/4427
Fiber Optic FDDI Host Modl 3904	6387

American Power Conversion

APC Smart-UPS 600/900/1250	$420/655/899

UNIX/ Open System Products

Univel Unixware (Novell & Unix Lab Company)

Unixware System V Release 4.2, Personal Edition (P.E. for 386 Workstation include X11)	$399
Univel Unixware SVR42, P.E. Utilities	335
Unixware P.E. SVR42, TCP/IP&NFS add on	229/user
Univel Unixware SVR42 Application Server	1995

Sunsoft/Interactive Unix System V/386

Unix System V Release 3.2 1.2 Users	$345
Unix System V Release 3.2 multiuser Extension	325
VP/ix (DOS under UNIX) OS/Multi-User	399/299
Application Platform (Unix VR3RunTime, VP/ix)	632
Network Platform (Unix VR3RunTime, VP/ix, TCP/IP)	851
Workstation Platform (Plus TCP/IP, VP/ix, X11 Rtm)	991
Workstation Developer (Plus X11 Dev. System	1995

SCO Santa Cruz Operation

Personal Unix Operating System V3.2.4	$452
Unix Operating System Multiuser V.3.2.4	951
Unix Development System V3.2.4 w/C-Compiler	951
SCO C++ for Unix	920
SCO NFS for IBM-AT	531
SCO TCP/IIP Run Time for AT/Dev. Sys.	531/299
SCO FoxBase+ for AT/ Run Time	899/372

NetWorth

Concentrator with Netware Application Engine NAE1	$4250
Concentrator with Application Engine w/ Netware NAE2	3525
Chassis for Series 4000 1/3/6/10 Slot	296/745/984/2195
Host Module: 10BaseT 12RJ45+AUI (UTPM12A)	1399
Host Module: 10BaseT 12R45+1Fiber (UTPM12F)	1569
Fiber Module 6 Port (FIBER06)	1794
Telco/Smart Telco Module	1449/2170
Smart 10BaseT Module	1656
Network Mngmet Module	361
MicroHub UTP9/ 8UTP+1BNC	399

IBM Token-Ring Products

IBM 16/4 Mbps Token-Ring Adapter	$912
3Com Tokenlink III, 16/4 (3C619 /3C679 EISA)	521/815
Compatable 16/4 Mbps Token-Ring Adapter	425
Microdyne Exos SAA Sync/X.25 adapter	512/815
Microdyne EXOS SNA Gatewary	2395
Microdyne EXOS 3270 Token Ring Server	2995
8 Port Token-Ring MAU (MAU8228 Compatible)	325
3270/5250 Emulators, 3270 Gateway	CALL

Pinnacle Opticle Hard Drive

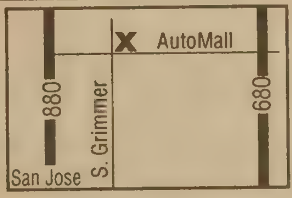
650MB, 10GB, 20GB, 60GB, 93GB Opticle Hard Drive for PC/Novell, Mac & Sun	$3995/9995/59,995/89,995

JUMP

43446 South Grimmer Blvd.
Fremont, CA 94538

(510) 440-8006
Fax (510) 440-0703
Hours: M-F 10-7 SAT 11-4
ATM Pay Point

MasterCard VISA



DOWNTOWN
SAN FRANCISCO
Retail store
New
Business
Mon-Fri
9 am -7 pm
Sat & Sun
10 am - 4 pm

SF STORE NOW OPEN 7 DAYS A WEEK

Apple® Macintosh®

File Edit View Label Special

Macintosh Printers

Apple® StyleWriter® II	$339.99
Apple® LaserWriter® Pro 600	$1799.99
Apple® LaserWriter® Pro 630	$2379.99
HP LaserJet 4M 600 dpi/8ppm/RISC Proccessor	$1944.99
Tektronix Phaser 200e Plain paper/2ppm/RISC Proccessor	IN STOCK
Tektronix Phaser IIIpxi Plain paper 12"x18"/RISC Proccessor	IN STOCK
Apple® Macintosh® Quadra™ 700 (Limited supply)	starting from $2249.99
Apple® Macintosh® Quadra™ 950	starting from $4579.99

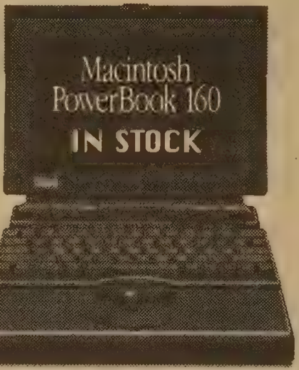
All New Macs®

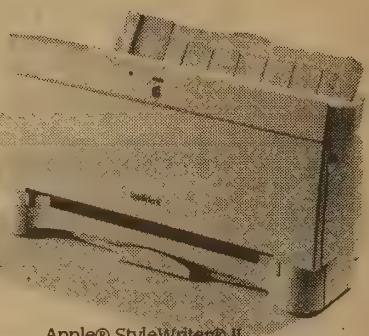
Call now..... ⌘X

- Apple® Macintosh® PowerBook™ 165c
- Apple® Macintosh® Color Classic®
- Apple® Macintosh® LCIII
- Apple® Macintosh Centris™ 610
- Apple® Macintosh Centris™ 650
- Apple® Macintosh Quadra™ 800

Before this ad runs out of memory

Hurry


Macintosh PowerBook 160
IN STOCK


Apple® StyleWriter® II

Macintosh PowerBook Duo with DuoDeck

Macintosh Color Classic
Apple® LaserWriter® Pro 630 and 600

New Mac

Authorized Reseller

Macintosh Quadra 800
Macintosh Centris 650
Macintosh Centris 610
Macintosh LCIII
Macintosh PowerBook 165c
Color PowerBook™ from Apple® Macintosh®

Computown

Reflects cash prices only.
Not responsible for typographical errors. Apple, The Apple Logo, Macintosh, StyleWriter, & LaserWriter are registered trademarks of Apple Computer, Inc. PowerBook, PowerBook Duo, Macintosh Quadra, & Macintosh Centris are trademarks of Apple Computer, Inc. Specifications & prices are subject to change without notice.

SAN FRANCISCO 756 MARKET ST. WEEKDAYS 9-7 WEEKDAYS 10-4	MOUNTAIN VIEW 2444-A OLD MIDDLEFIELD WAY MON-FRI 8-6, SAT 11-4	PLEASANT HILL 1525 CONTRA COSTA BLVD. MON-FRI 9-6, SAT 10-4	MILPITAS 372 SOUTH ABBOT AVE MON-FRI 9-6, SAT 11-4
415 956 8696	415 962 8696	510 682 8696	408 262 1200

ThinkPad™ 700C 700 300 notebooks FROM IBM

IBM Business Partner
Authorized Advanced Products Dealer

IBM ThinkPad

IBM ThinkPad 700

- 80/120 MB hard drive
- 80486 SLC processor at 25 MHz
- 4 MB RAM
- STN LCD, 16 bit VGA screen
- DOS® 5.0 (including Windows™ 3.1 support)

IBM ThinkPad 300

- 80/120 MB hard drive
- 80486 SL processor at 25 MHz
- 4 MB RAM
- 64KB memory cache
- DOS® 5.0 (including Windows™ 3.1 support)

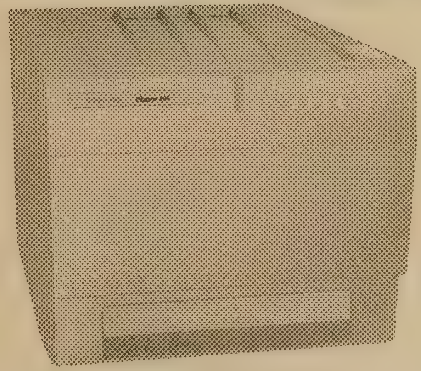
IBM ThinkPad 700C

- 80/120 MB hard drive
- 80486 SLC processor at 25 MHz
- 4 MB RAM
- Color TFT LCD, 16 bit VGA screen
- DOS® 5.0 (including Windows™ 3.1 support)

Visit our store at San Francisco to experience the IBM VALUE POINT desktop systems.

IT'S JUST LIKE A LASERJET®, ONLY WITH 16,699,999 MORE COLORS.

Tektronix



Ordinary laser printers are easy, networkable and compatible with most business software. Big deal. But if you had a Tektronix Phaser 200 color printer you'd also have 16.7 million brilliant colors (the best color in the business), Adobe PostScript Level 2, Pantone® color matching, a printing speed of two pages per minute, high materials capacity (deep breath), flexibility to print on laser printer or transparencies (you select the medium you want at your computer keyboard), and a very reasonable price tag of $3499.99. Want a free demo? All you have to do is call. There's the phone right over there.

◆

Tektronix Color Printers

☎

SAN FRANCISCO
415
956
8696

MOUNTAIN VIEW
415
962
8696

PLEASANT HILL
510
682
8696

MILPITAS
408
262
1200

FOR IN HOUSE/ ON SITE WARRANTY REPAIRS
AND SERVICE, **Call us at 415 394 8888 ext. 224**
Products serviced: AST(Computers, notebooks, monitors)
COMPAQ (Computers, notebooks, monitors) HP (printers)
NEC (laptops), MACINTOSH(Computers, PowerBooks, Printers

Phaser is a trademark of Tektronix, Inc.
PostScript is a trademark of Adobe Systems Inc.
All other marks are trademarks or registered trademarks
of the products with which the marks are associated.

Computown

NEC Ready

Please Call For
NEC Ready 325™ &
NEC Ready 433™

Ready 425™ System

- Intel i486SX running at 25 MHz
- 4 MB RAM expandable to 64 MB using SIMMS
- 170 MB IDE hard disk drive
- Dual diskette drives (1.44 MB and 1.2 MB)
- 1 MB video RAM (up to 1024 x 768 resolutions
- 3 expansion slots
- NEC Mouse
- Integrated fax and data modem (modem software included)
- Perfect Touch™ mechanical keyboard
- 24-bit True Color
- Applications: NEC DESKTOP, WINDOW WORKS, PRODIGY, QUICKEN

Ready!

Ready 425 **$1279**

Ready 1024™ Monitor

Flicker free 14" monitor for NEC's Ready! systems
.28 dot pitch Supports the following refresh rates:
640 x 480/72 Hz
800 x 600/72 Hz
1024 x 768/60Hz (non-interlaced)
Meets MPR2 Swedish standard for low emissions

Ready 1024 Monitor **$329**

Authorized Reseller

AUTODESK
AUTHORIZED MULTIMEDIA DEALER

AutoCAD® spoken here

AUTODESK
AUTHORIZED MULTIMEDIA DEALER

When you see the AutoCAD Authorized Reseller sign, you know you'll get the support services that are vital to protecting your CAD investment - services like custom installation, specialzed training and high level technical support. Only authorized resellers can keep you informed about upgrades and special discounts. If you buy from someone else, you're out in the cold. Don't chance it. Make sure you get what you really need. Look for the AutoCAD Authorized Reseller sign.

AUTODESK
AUTHORIZED MULTIMEDIA DEALER

AUTOCAD®
AUTHORIZED RESELLER

we make your PC easier to use

Program Manager

File Options Window Help

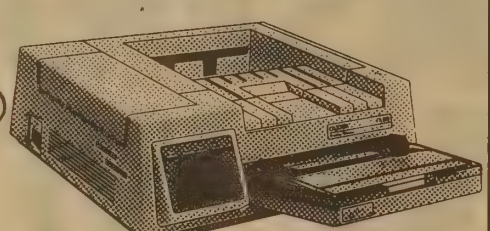
OMRON 24/96 Pocket Modem with WIN/FAX	**$169.00**
OMRON IMPALA 14.7K Fax/Data modem with OCR	**$169.00**
ETERNASCAN Color Hand Scanner	**$299.00**
CREATIVE LABS Multimedia Upgrade Kit	**$549.00**
WatchIT TV Live TV in your Windows	**$299.00**
3M 5.25" DSHD 10 Floppy Disks IBM Formatted	**$6.99**
PC ACCESSORIES 6 Outlet Surge Protector	**$7.95**
PC ACCESSORIES Multi Function Disk Storage Box	**$8.99**
Exit Windows	

OKIDATA®

OKIDATA OL400

- 4 ppm printing speed
- 300x300 DPI resolution
- 200 sheet letter size paper input tray with adjustable manual feed.
- 5 year LED Head warranty

$599



OKIDATA OL810

- 8 ppm printing speed
- 300x300 DPI resolution
- OKI Smooting Technology™
- 200 sheet letter size paper input tray with adjustable manual feed.
- 5 year LED Head warranty

$1029

TYIN 2000™

TURN YOUR PC INTO A FAX, VOICE MAIL, DATA MODEM AND AUDIO COMMUNICATIONS CENTER
Data modem
Up to 9600 bps with V.42 bis over 2400 bps. Call store for more details.

$189

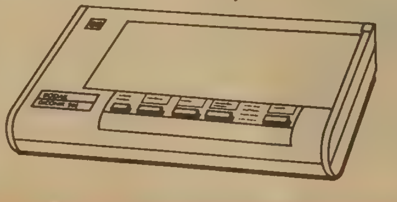
TyIN 2000
Fax
Data Modem
Answering Machine

THERE ARE 174 NEW FEATURES IN AUTOCAD® Release 12

AutoCAD Release 12 has 174 new features to amaze you. New technology that virtually eliminates regens. WYSIWYG plot preview. Phenomenal 3D capabilities. A new interface. Call direct to arrange for an appointment and demo.

CALL DIRECTLY
John Mork
415 394 8888 x241

KODAK
PRINTER PRODUCTS



Kodak Diconix 701 Printer

Crisp, clear 300 dpi quality text
Built in single sheet feeder with 40 sheet capacity
Light and Portable. Suitable on people on the run.
Connects to your notebooks.

CALL

Computown

SAN FRANCISCO
756 MARKET ST.
MON-FRI 8-6, SAT 11-4
415
956
8696

MOUNTAIN VIEW
2444-A OLD MIDDLEFIELD WAY
MON-FRI 8-6, SAT 11-4
415
962
8696

PLEASANT HILL
1525 CONTRA COSTA BLVD
MON-FRI 9-6, SAT 10-4
510
682
8696

MILPITAS
372 SOUTH ABBOT AVE
MON-FRI 9-6, SAT 11-4
408
262
1200

The World of Notebooks

T4500 Series

TOSHIBA

T4500C & T4500
i486SX / 25 MHz
4 MB RAM
120 MB HD
1 PCMCIA slot

ON DEMO Call

TOSHIBA

Satellite T1800 *BUNDLE*
i386SX / 20 MHz
2 MB RAM/60 MB HD
(Bundle includes MS Windows 3.1, DOS 5.0, Ultrafont, Trackball, Instructional Video worth $300 MSRP)

Now only $1250

TEXAS INSTRUMENTS

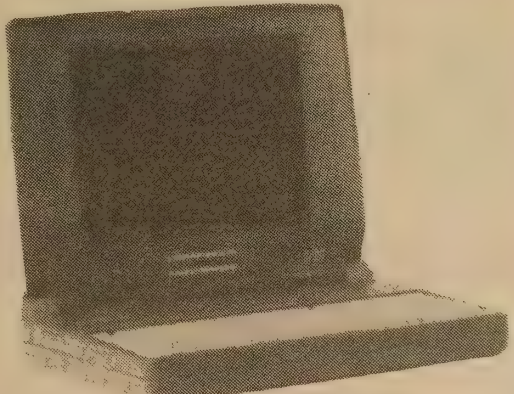
TRAVELMATE 4000 WIN SX/25
486SX / 25 MHz
4 MB RAM
120 MB HD

Now only $2449

NEC

ULTRALITE SL 25C
i386SX / 25 MHz
2 MB RAM
120 MB HD
COLOR NOTEBOOK

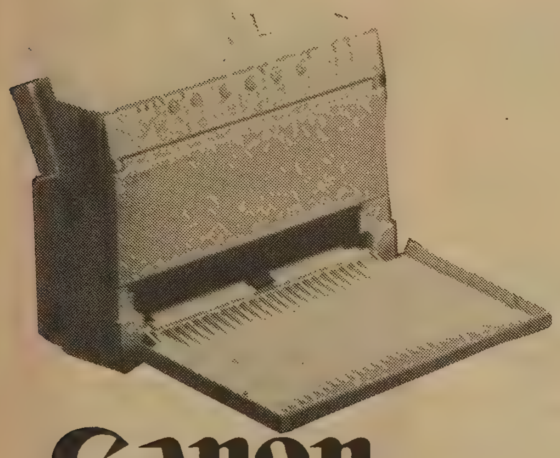
Now only $2699



COMPAQ

LTE LITE/25C
386SL / 25 MHz
4 MB RAM
120 MB HD

CALL



Canon

BJ-10 printer $325
BJ - 200 printer $369

SHARP

PC-6785
i386SL / 25 MHz
4 MB RAM/80 MB
Built in trackball

$1539

AST

Authorized System Reseller

3/25EL IN STOCK!

PowerExec 3/25 SL
Intel 386 SL Processor
4 MB RAM
60, 80, 120
or 160 MB HD

CALL

☎

SAN FRANCISCO
415
956
8696

MOUNTAIN VIEW
415
962
8696

PLEASANT HILL
510
682
8696

MILPITAS
408
262
1200

FOR IN HOUSE/ ON SITE WARRANTY REPAIRS
AND SERVICE, **Call us at 415 394 8888 ext. 224**
Products serviced: AST(Computers, notebooks, monitors)
COMPAQ (Computers, notebooks, monitors) HP (printers)
NEC (laptops), MACINTOSH (Computers, PowerBooks, Printers)

Reflects cash prices only
Not responsible for typographical error
Specifications are subject to change without notice
All other marks are trademarks or registered trademarks
of the products with which the marks are associated.

MasterCard VISA

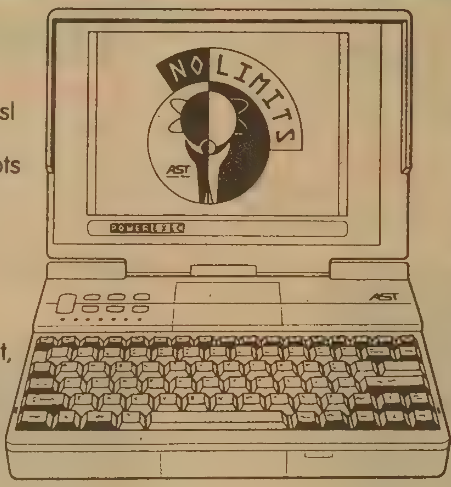
Computown

COMPUTER WERX
ONE STEP AHEAD

AST POWER EXEC, POWER PREMIUM AND BRAVO SYSTEMS OFFER THE MOST INNOVATIVE AND COMPREHENSIVE ARRAY OF STATE-OF-THE-ART TECHNOLOGY AVAILABLE TODAY. WHEN THINKING ABOUT YOUR NEXT COMPUTER SYSTEM...THINK AST & COMPUTER WERX...

AST® Authorized Systems Reseller

STANDARD FEATURES:
- 4 MB of RAM
- 3.5" 1.44 MB Floppy
- 2.5" Removable Hard Disk
- LCD/External Monitor Simultaneousl Display
- Two PCMCIA, Type II Expansion Slots
- Power Pack NIMH Battery Pack
- Flash BIOS
- 82-Key Keyboard, 12 Dedicated Function Keys, 3mm Travel
- 1 Serial/1 Enhanced Parallel/1 Mouse/1 Ext. Monitor
- One Expansion Port/For Power Port, Easy Port
- Up to 6.5 Hours of Battery Life
- Available with 60, 80, 120 and 160 MB Hard Drive
- MS-DOS 5.0
- One Year Limited Warranty



POWER EXEC 3/25SL Includes:
*386SL, 25 MHz Processor
*64KB RAM Cache
*4 MB RAM Exp to 20 MB (5 volt)

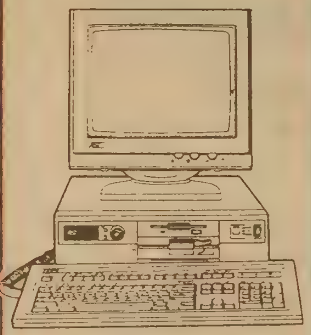
POWER EXEC 4/25SL Includes:
*486SL, 3.3 volts, 25 MHz Processor
*8KB Internal Cache
*4 MB RAM Exp to 32 (3.3 volt)

POWER EXEC Monochrome
*CCFT Sidelit Film Compensated Supertwist
*64 Gray Scales

POWER EXEC Color
*Passive F_STN Color Display
*256 Colors

POWER EXEC Color Plus
*Active-Matrix Color Display
*256 Colors

MORE REASONS TO BUY AST
- -Novell Certified, Novell Labs Tested and Approved
- -Runs OS/2, UNIX, DOS NETWARE and ZENIX
- -Customers Satisfaction Guaranteed
- -Expert Technical Support
- -Standardized by Most Corporate Companies
- -Expandable, Upgradable
- -More Features, Performance,
- -Power, Reliability and Compatibility for LESS MONEY!

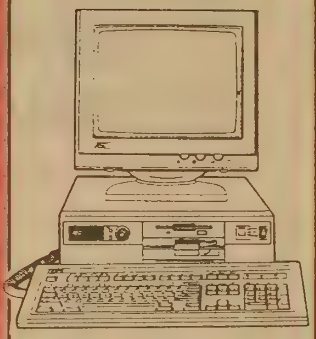


AST BRAVO 4/25s BRAVO 3/33s

BRAVO 4/25s
- Intel 486SX-25 MHz Processor
- Integrated 8 KB of Cache
- Support for Intel OverDrive Upgrade
- Support for Optional i487SX Numeric Co-Processor

BRAVO 3/33s
- Support for Optional 387SX Numeric Co-Processor

Standard Features
- 2 MB RAM Expandable To 16 MB (3/33s) to 64 MB (4/25s)
- 1.44 MB 3.5" Floppy Drive
- 512K Video RAM Support For 1 MB Video RAM
- Support For 1024x768 Resolution
- 101-Key Height-Adjustable Keyboard
- One Year Limited Warranty

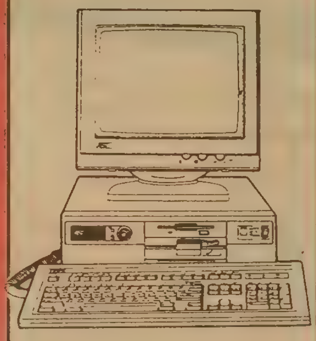


AST BRAVO 4/33 BRAVO 4/33s

BRAVO 4/33
- Intel DX486 33 MHz Processor
- Integrated 8 KB of Cache
- Support for Intel OverDrive Upgrade

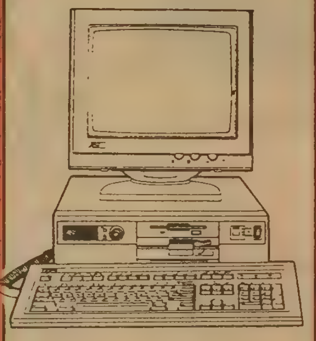
BRAVO 4/33s
- ntel 486SX 33 MHz Processor
- Integrated 8 KB of Cache
- Support for Optional i487 Math Co-Processor
- Support for Intel OverDrive Upgrade

Standard Features
- 2 MB RAM Expandable To 64 MB On System Board
- 1.44 MB 3.5" Floppy Drive
- 512K Video RAM Upgradable to 1 MB Video RAM
- MPC- (Multimedia PersonalComputer Compatible
- 101-Key Height-Adjustable Keyboard
- 2 Serial, 1 Parallel,1 Mouse Port
- One Year Limited Warranty
- Integrated Ethernet (Model 3n only)
- One Year Limited Warranty



AST POWER PREMIUM 3/33, 3/25

- 4 MB of RAM Standard (2 MB for 3/25) Expandable to 80 MB
- Microsoft Windows Models with 8 MB RAM, 210 MB HD Drive Factory Installed MS Windows 3.1, MS DOS 5.0, Mouse and AST Mouse Pad
- Integrated Premium VGA
- AST FlashBIOS (simplified software-based BIOS upgrade)
- Cupid-32 Upgradability
- 1.44 MB 3.5" Floppy Drive
- 5 Available 32-Bit EISA Expansion Slots (ISA Compatible)
- Integrated Floppy Controller/ Connector and IDE interface
- 101/102 Key Keyboard
- 2 Serial, 1 Parallel, 1 Mouse Port
- One-Year Limited Warranty



AST POWER PREMIUM 4/66d, 4/50d 4/33, 4/25s

- 4 MB of RAM Standard (8 MB for 4/66) Expandable to 80 MB
- Microsoft Windows Models with 8 MB RAM, 210 MB HD Drive Factory Installed MS Windows 3.1, MS DOS 5.0, Mouse and AST Mouse Pad
- Integrated Premium VGA
- AST FlashBIOS
- Cupid-32 Upgradability
- 1.44 MB 3.5" Floppy Drive
- 5 Available 32-Bit EISA Expansion Slots (ISA Compatible)
- Integrated Floppy Controller/ Connector and IDE interface
- 101/102 Key Keyboard
- 2 Serial, 1 Parallel, 1 Mouse Port
- One-Year Limited Warranty

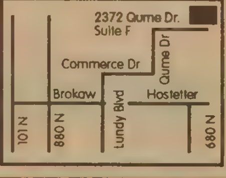
AST PREMIUM SE 4/66d, 4/50d, Premier Servers

- 16 MB of RAM Standard, Exp. to 32 MB on the Processor Board, 80 MB Total System
- 256 KB Second Level Copy Back Cache
- AST FlashBIOS
- 1.44 MB 3.5" Floppy Drive
- 3 External Accessible Half-Height Drive Bays
- 8 Internal 3.5" Drive Bays on Models 33, 503, 1003
- Cupid-32 Upgradability
- Ten 32-Bit EISA Expansion Slots
- Integrated Floppy, IDE Interface
- Three Level Password Protection and Chassis Lock
- 101/102 Keyboard
- One Year Limited Warranty

AST, AST logo registered, PowerExec, EasyPort and SmartPoint registered AST Research, Inc.

CALL FOR PRICING ON AST COMPUTERS

AST, AST logo and Premium registered and Cupid-32, Cupid-32 trademarks AST Research, Inc.



2372 QUME DRIVE, SUITE F
SAN JOSE, CA 95131
TEL: (408) 954-0490 Fax: (408) 954-0496

C-WERX

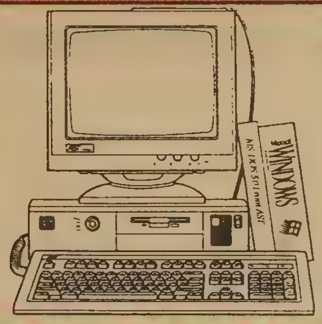
COMPUTER WERX
ONE STEP AHEAD

COMPUTER WERX BRINGS YOU THE BEST QUALITY AND BEST PRICES AST POWER PREMIUM BUNDLES IN THE MARKET TODAY. PLACE YOUR ORDERS NOW WHILE SUPPLIES LAST

AST POWER PREMIUM EISA
386DX-33 w/213 MB BUNDLE

- Built-In Premium VGA 1280x1024 Refresh 70/72Hz
- Intel 386DX-33 MHz
- 16 KB 0-Wait State, 4-Way Cache
- Socket For Intel 387DX
- 4 MB RAM Exp to 16 MB On Bd. to 80 MB Total
- 213 MB IDE Hard Drive
- MS DOS 5.0, MS Windows 3.1
- MS Mouse & Mouse Pad
- 3.5" Floppy Drive

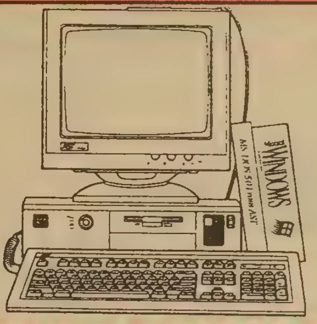
$2170



AST POWER PREMIUM EISA
486DX2-50 w/213 MB BUNDLE

- Built-In Premium VGA 1280x1024 Refresh 70/72Hz
- Intel 486DX2-50MHz
- 8 KB 0-Wait State, 4-Way Cache
- Standard 80387 Numeric Co-Processor
- 4 MB RAM Exp to 16 MB On Bd. to 80 MB Total
- 213 MB IDE Hard Drive
- MS DOS 5.0, MS Windows 3.1
- MS Mouse & Mouse Pad
- 3.5" Floppy Drive

$2585



AST POWER PREMIUM EISA
486DX2-66 w/213 MB BUNDLE

- Built-In Premium VGA 1280x1024 Refresh 70/72Hz
- Intel 486DX2-66MHz
- 8 KB 0-Wait State, 4-Way Cache
- Standard 80387 Numeric Co-Processor
- 8 MB RAM Exp to 16 MB On Bd. to 80 MB Total
- 213 MB IDE Hard Drive
- MS DOS 5.0, MS Windows 3.1
- MS Mouse & Mouse Pad
- 3.5" Floppy Drive

$2730

BASE SYSTEMS INCLUDE: 3.5" 1.44 MB Floppy Drive, 1 MB RAM, AMI BIOS, SIS Chipset, Mini-Tower Case, IDE Controller, One Serial, One Parallel Ports & 101-Keyboard.

486SX/25, 128K
$449

486SX/33,128K
$493

486DX/33, 128K
ISA **$605**
EISA **$775**

486DX2/50, 128K
$748

486DX/50, 128K
ISA **$605**
EISA **$775**

486DX2/66, 128K
ISA **$605**
EISA **$775**

+UPGRADE TO 256K CACHE...ADD $30 **+UPGRADE TO VESA LOCAL BUS MOTHERBOARD...ADD $65**

VIDEO CARDS

#9 GX1 Level 21	**$655**	Diamond Speedstar 24X	**156**
#9 GX1 Level 23	**918**	Diamond Stealth 24/VLB	**164**
#9 GX1 Level 25	**1182**	Metheus Premier 1280NI	**285**
#9 GX1 Level 29	**1511**	Trident/1 MB	**57**
Accumos 256K	**30**	Trident/512K	**39**
ATI Ultra Graphic/1 MB	**305**	Oak VGA 1 MB	**50**

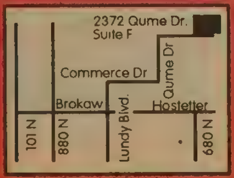
MONITORS

14" SVGA 1024x768 .28	**$255**	Mag MX15F/15"	**585**
14" SVGA 1024x768 NI .28	**295**	Mag MX17F/17"	**1087**
14" SVGA 1024x768 .39	**215**	Mono VGA 640x480	**139**
15" Flat 1280x1024 NI .28	**470**	Nanao F5501/17"	**1075**
17" Flat 1280x1024 NI .26	**840**	Sony 1304S	**588**
Hitachi CM1584MU/15"	**494**	Sony 1604S	**999**
Hitachi CM1785MU/17"	**1012**	Sony 2036/20"	**1999**
Hitachi CM2085M+/20"	**1315**	VGA 640x480 .51	**178**
Hitachi CM2187/21"	**2194**	Sony 1430	**610**
Idek MF8317/17"	**1070**		

HARD DRIVES

Conner 120 MB SCSI 15ms	**$345**	Maxtor 120 MB SCSI 15ms	**242**
Conner 120 MB IDE 19ms	**CALL**	Maxtor 213 MB IDE 15ms	**352**
Conner 200 MB SCSI 12ms	**368**	Maxtor 213 MB SCSI 15ms	**363**
Conner 212 MB IDE 12ms	**CALL**	Maxtor 340 MB IDE 13ms	**588**
Conner 40 MB IDE 27ms	**143**	Maxtor 340 MB SCSI 13ms	**599**
Conner 80 MB IDE 19ms	**210**	Maxtor 535 MB IDE 12ms	**902**
Conner 540 MB IDE 12ms	**880**	WD 125 MB IDE 15ms	**242**
Maxtor 80 MB IDE 19ms	**220**	WD 212 MB IDE 14ms	**360**
Maxtor 120 MB IDE 15ms	**236**	WD 85 MB IDE 17ms	**200**

Warranty: One Year Parts & Labor, Return Policy: 15 days Money Back Subject to 10% Restocking Fee, Shipping Charges Not Refundable. Not Responsible For typographic Errors, Prices Subject To Change W/O Notice. Corporate Accounts Welcome. We Accept Purchase Orders.



2372 QUME DRIVE, SUITE F
SAN JOSE, CA 95131
TEL: (408) 954-0490 Fax: (408) 954-0496

C-WERX

CORPORATE PO'S WELCOME

The Citrix Application Server

Plus: Network Innovation At Macworld Expo

BY YACCO

LOCAL AREA NETWORKS

Several months ago, I did a column on LAN outer network (LON) products. Those products—Centrum's Remote Access Server, Microdyne's NetWare Access Server, and Shiva's NetModem—all enable remote network access using a combination of hardware and software. Each connects to a LAN from the field using asynchronous analog lines, digital services such as T1, switched 56K, or Integrated Services Digital Network (ISDN), or both. These LON products allow users to experience a remote connection as if they were connected directly to the LAN with an adapter, but without an adapter or even the network media required to connect one.

Systems in the Citrix A+ Application Server Series are similar products, with some very interesting twists. First, the Citrix systems are application servers for DOS 5.0, Windows 3.1, and OS/2 2.0 applications—and all three types of application run on an OS/2 kernel. Second, the interface for both Windows and OS/2 is the Windows 3.1 shell, not PM. Third, code for all three systems is licensed through Microsoft, not IBM (which is why Citrix is able to run Windows 3.1 on the OS/2 kernel before IBM ships support for it).

Citrix users have access to the network file servers, printers, and other resources as though they were connected to the LAN through an NIC. The other LON products also provide this type of access. Like the Centrum and Microdyne solutions, Citrix supports multiple users. The Citrix architecture uses a multiple-serial-port card to support twenty to thirty terminals connected directly or through modems. However, a Citrix application server can also run programs for the terminals. In this way, the Citrix products are similar to those from Microdyne. (Citrix differs because its connectivity solution is an integral part of the operating system. Microdyne uses a pastiche of QuarterDeck's DESQview, a remote-control utility, and other software to provide connectivity.)

The Citrix systems are application servers for DOS 5.0, Windows 3.1, and OS/2 2.0 applications—and all three types of application run on an OS/2 kernel.

The Citrix Application Server comes in two varieties: the A+ Remote ($1295 for a five-user pack), and the A+ Application Service Pack ($2990 for up to twenty users). Both servers provide basic multiuser LON support. The Application Service Pack adds application-execution services for local LAN clients to its basic LON functions. This capability can be used with a DOS terminal application, Citrix LANLINK, to run multiple apps in background on the remote Citrix server while Windows apps run in the foreground on the local Windows client. Mark Wasiele, western regional sales manager, says, "We provide Windows applications to low-powered PCs—for instance, Windows 3.1 applications appearing to run on a '286." A company might have a large number of '286 PCs. Using A+ allows them to run their applications on a '386 or '486 Application Server. It's an alternative to the expense of migrating to '386 machines just to run Windows 3.1. "Up to ten concurrent Windows users can run on a '486-based machine, allocating between 2 and 4MB per user, with acceptable performance," Wasiele promises. Citrix Application Servers currently connect to Novell or LAN Manager networks; Banyan Vines support is coming with the new OS/2 Requester release.

The Citrix approach provides users with support for the most popular PC-based applications, the most popular graphical user interface, and a ready path to NT. Users currently benefit from 32-bit OS/2 kernel features including preemptive multitasking and multithreading, DPMI, extended and expanded memory, protected mode, and crash insulation. In addition to the true Windows 3.1 code added this quarter, Citrix extends the operating system with support for multiple dial-in or Novell-client users, a priority-based preemptive scheduler for multiple users, a four-tier access system (Guest, User, Operator, Administrator), multiuser administration, higher physical memory limitations, and unlimited concurrent applications per user. An optional ($495 for five users) multiuser version of Windows 3.1, WINcredible, runs on a server and is distributed to remote users. The servers do not have IBM's OS/2 Extended Services: Presentation Manager, Communications Manager, and Data Manager.

"The network of the future will have multiple scalable application servers providing application execution services for DOS, Windows, OS/2, and UNIX," predicts Wasiele. "We're trying to stake out territory for Citrix as the application server company for both local and remote users." As a final twist, v3.0 of the server software is expected to drop the OS/2 kernel in favor of NT. Wasiele claims Citrix will be the sole provider of a multiuser version of Windows NT.

POOR MAN'S FDDI

I recently attended a Yankee Group seminar in Los Angeles on re-

RESOURCES:

Citrix Systems, Inc.
210 University Dr., Ste. 700
Coral Springs, FL 33071
1-800-437-7503
(305)755-0559

The Digital Pond, digital imaging center
50 Minna St.
San Francisco, CA 94105
(415)495-7663

Copyright © 1993 by Wayne A. Yacco. All rights reserved.

The #1 Source For Network Solutions!

INTEL NETWORKING SOLUTIONS

intel

Intel makes networks easier to build, use, and manage by delivering a broad line of networking products: Ethernet and Token Ring LAN adapters, hub adapters, LAN printing and fax solutions, server-based virus protection and network managment tools.

StorageExpress is a fully integrated, centrally managed system for reliable multi-server back-up. Because the system integrates NetWare Runtime, you can install and configure the system in as few as 15 minutes-without downing any file servers or disrupting network operation. The system includes a control unit that houses the CPU, integrated Ethernet and SCSI-2 interfaces, memory and hard disk and a peripheral unit that houses either a 2.2GB or 5GB tape drive and an expansion bay for a second 5 GB tape drive.

- Fully integrated system for max. reliability
- Backs up both servers and workstations
- File Tracker provides file level restore
- No NLMs on file servers for higher server reliability
- Supports Novell's Storage Management Services (SMS)
- Supports Ethernet and Token Ring
- Backed by Intel Service and Support

UNIX APPLICATIONS

Dbase v1.1386 Uni-Process	$1,560
Dbase v1.1 386 Multi-Process	$2,825
CorelDraw! v2.01.1	$407
DESQview/X	$180
Digifax Software	$306
Grammatic IV v2.0	$365
Wordperfect 5.1	$326
Wordperfect 5.1 (5 node license)	$927
Wordperfect Office 3.1	$75
Wordperfect Office 3.1 (5 node)	$223
Xtree File Manager	$212

cc:Mail:

UNIX/uucp Link (req. Import/Export)	$570
Import/Export	$815
Unix Platform	$680

SERVICES

- Free Initial Consultation
- Complete Turn Key Solutions
- Complete System Integration
- Custom Cabling
- Software & Hardware Training
- Consulting & Project Management
- On-site installation
- Telephone support
- Computer to Computer support
- Professional Service Contracts

Novell Authorized Reseller

SCO
THE SANTA CRUZ OPERATION

NOVELL PRODUCTS

NetWare 3.11

5 Users	$592
10 Users	$1,349
20 Users	$1,889
50 Users	$2,700
100 Users	$3,616
250 Users	$6,460

NetWare 2.2

5 Users	$484
10 Users	$1,078
50 Users	$2,065
100 Users	$3,099

LANalyzer for NetWare	$760
Lan Workplace For DOS v4.0 1-User	$305
Lan Workplace For DOS 10-User	$1,517
NetWare for Mac (NLM) 5-Users	$377
NetWare for Mac 20-Users	$675
NetWare for Mac 100-Users	$2,260
Novell NetWare NFS v1.2	$3,719
NetWare WanLinks v2.0	$1,128
NetWare Access Server v1.2	$1,775

NSE Professional Volume is an annual CD-ROM subscription containing technical information, NetWare manual sets, NetWare Buyer's Guide, Novell Product and corporate information, NetWare application notes, downloadable NetWare patches, fixes, and enhancements, downloadable device drivers & utilities, trouble shooting decision tree utilities, third-party technical information, and other manuals. It's ideal for LAN administrators responsible for maintaining large and/or complex NetWare LANS.

NSE Pro Annual Subscription *$995*

OUR COMMITMENT TO EXCELLENCE

When designing your network, accept no compromise

- **Don't compromise on service.** The foundation of our company is built on superior customer service. You should expect excellent service, it's a standard for us.
- **Don't compromise on technical expertise.** We are primarily a networking company. We provide a full range of services for all your networking needs. Our approach shows in our exceptional expertise of networks and networking solutions. And of course, we are Novell & SCO Authorized.
- **Don't compromise on value.** We only recommend solutions which will meet your needs. You can be assured that our networks will be the best value for your money.

° One year parts and labor warranty
° 15% restock charge on non-defective returns.

UNIVEL PRODUCTS

UnixWare

UnixWare, developed by the Novell and Unix Systems Laboratories (USL) partnership, unleashes the combined power of Novell and Unix to provide users with the unrivaled multi-tasking and multi-user strengths of Unix to the Novell environment. Built on the new Unix System V, Release 4.2, it can run any Unix application and comes with the newest verison of the X Windows network windowing system, X1145 and both Motif-based and Open Look-based GUI front ends.

Personal Edition **$375**

The Univel Personal Edition provides a 32-bit, scalable, UNIX client platformwith an easy-to-use graphical user interface and a comprehensive on-line help facility. Seamless access to NetWare file, mail, and print services, support for UNIX, DOS and Windows applications. Features included:

- Unix System V, Rel. 4.2 operating system
- Graphical Desktop Manager
- NetWare Unix Client
- DOS-under-UNIX
- Adobe Type Manager Support
- Korn and C Shells
- Graphics Utilities and more

Application Server **$1,845**

- Provides all of the above listed Personal Edition functionality and adds multi-user and server packages, including TCP/IP and NFS support.

Personal Utilities for Pers.Ed.	**$300**
TCP/IP & NFS for Pers. Ed.	**$223**
Encryption Encoding Capabilities	**$95**

Take advantage of running the most powerful 32-bit operating system to date and get the best of both worlds, NetWare and Unix.

3COM NETWORKING

3COM offers a full line of Ethernet & Token Ring networking solutions. Their newest line of Etherlink III adapters offer unmatched performance at an incredibly low price. The **3C579** is a high performance EISA lan card w/ lifetime warranty and an unbeatable price of only **$ 299.** Install multiple cards in your server for even higher performance. We stock a full line of 3COM products, including the award winning **3C509** & **3C509TP** in both single and 5 packs.

NETWORK INNOVATIONS
90 South Spruce Ave., Suite N
So. San Francisco, CA 94080
Phone (415) 872-1377
24 Hr. Fax/Voice (415) 872-6634

NETWORK INNOVATIONS
(415) 872-1377

engineering LANs. A couple of the examples were drawn from hospitals needing to move large medical image files on their networks. One institution had taken the approach of upgrading its entire network to high-speed media, and the other had built a second parallel network just for the high-volume traffic.

Each approach had its cost-performance advantages and disadvantages, I suppose, but either is beyond the means of many small organizations. However, I had already heard of a similar parallel network solution at Macworld which, although not very elegant, was far more affordable.

The Digital Pond, a San Francisco-based digital-imaging center, produced all the images displayed and handed out in the Fractal Design booth at Macworld, as well as most of the images displayed at the HSC exhibit at this year's Verbum Digital Be-In. The HSC exhibition featured the works of several artists, but principally those of Kai Krause. All of the works were produced using Kai's Power Tools (KPT), a set of filters from HSC that work with Adobe's Photoshop or any software that can handle Photoshop plug-ins (e.g., Aldus Gallery Effects, Fractal Design Painter, and Color Studio). KPT lets artists create unique textures using its own powerful interface, and it was a smash at Macworld. To many artists and designers, it was the show's hottest "E" ticket.

It was a major challenge for the Digital Pond to produce the exhibition in time for the party. In addition to all the normal problems posed by such a project, the company had to overcome obstacles created by the need to finish calibrating and testing its equipment—all prior to opening its doors for the first time. Partners John Crutcher and Peter Hogg had already spent over two months on the task when HSC inundated them with a torrent of data just one week before Macworld. The Pond's christening was also its first flood. It required processing twenty-four hours a day for most of the week.

Managing the enormous graphics files that had to be moved around the studio was part of the challenge. Several workstations scan and process the files before they're ready to be printed as 1800dpi virtual-resolution, artist-quality prints on the Pond's Iris 3047 inkjet printer. The $140,000 behemoth fills its huge 34" x 46 1/2" format with ink drops a mere 3 microns across to produce clean, large-format, four-color prints without tiling or pen plotting. (The company can also produce film output with its bit-hungry Management Graphics Solitaire16 film recorder.)

Providing all those dots requires files as large as half a gigabyte. Thirty to 50MB is near minimum. They all have to be digested by an IBM front end outfitted with an IKON interface board that supports data transfer at least as fast as the Iris is capable of printing. Data from several of the Pond's many other computers—which include two Quadra 950s, three AST '486s, a Silicon Graphics Iris Indigo XS24 4000, a Mac IIci, and an Optronics ColorGetter II Pro drum scanner—must be transferred there first.

Files are often transferred by a form of super-sneaker-net: pulling a 2 or 3GB drive off one machine and plugging it into another. However, the remainder of the files, and they are legion, is transferred over the Pond's makeshift network via a series of General Purpose Interface Bus (GPIB) links—including one beteween a Quadra and a '486. The GPIB provides an IEEE 488 serial link, which the Digital Pond uses to stream data up to 5MB per second using Iris's PS-Link software. "A 450MB file takes about an hour and a half to go directly to the printer, but only forty or fifty minutes to move to the hard disk on the PC," says Crutcher.

It's not sophisticated, but for the Digital Pond, it gets the job done using a strategy much like that of that Yankee Group customer. One network for the low-volume traffic that runs the business and images of less than 10MB, another for huge files. Only 30–40% of Pond's files are large images. Nevertheless, Crutcher says, "If we had everything on the network and did a large transfer, the whole network would be loaded for the duration."

As it did for the hospital that chose this solution, a parallel network saves Digital Pond the cost of upgrading an entire network to meet the needs of a few nodes. "If there were a LAN that would support the sort of file sizes we're dealing with, then it would be the backbone of our business," he says. "We do a lot of wrestling to get around that lack." The network was also instrumental in producing an exhibition that's sure to be remembered as one of the hits of the 5th Digital Be-In. ■

EVENING and WEEKEND classes

MIS® SERVICES
"Service That's Second to None"

S.F.T. Level III Hands-On / LIVE!

NETWARE 4.0
Hands-On Seminar
(see below for details)

(800) 300 - 4 M.I.S.

SPRING TRAINING SCHEDULE

Day Classes: 9:00 a.m. – Noon, LUNCH, 1:00 p.m. – 5:00 p.m.

March			
	SAT	13th	NETWARE System Administration 3.11 [Module 1] *Day 1*
	SUN	14th	NETWARE System Administration 3.11 [Module 1] *Day 2*
	MON	15th	*BULLET* Diagnosing, Analyzing, Trouble-Shooting NETWARE LAN's
	TUE	16th	*BULLET* Fine-Tuning NETWARE LANS & Networking Devices for MAXIMUM PERFORMANCE
	WED	17th	*BULLET* RECOVERING NETWARE SYSTEM 2.x/3.x DATA & PASSWORDS
	THU	18th	*BULLET* NETWARE LANalyzer for Windows. Includes Mngmt. Analysis & Trouble-Shooting
	FRI	19th	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals
	SAT	20th	NETWARE Advanced System Administration 3.11 [Module 2] *Day 3*
	SUN	21st	NETWARE Advanced System Administration 3.11 [Module 2] *Day 4*
	MON	22nd	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals
	TUE	23rd	*BULLET* NETWARE Packet Burst Communications & Packet Filtering Technology
	WED	24th	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals
	THU	25th	Bridges, Routers & Inter-Networking *Day 1*
	FRI	26th	Bridges, Routers & Inter-Networking *Day 2*
	SAT	27th	To Be Announced
	SUN	28th	To Be Announced
	MON	29th	OS/2 2.0 Advanced *Day 1*
	TUE	30th	OS/2 2.0 Advanced *Day 2*
	WED	31st	IBM LAN Server 3.0 *Day 1*
April			
	THU	1st	IBM LAN Server 3.0 *Day 2*
	FRI	2nd	IBM LAN Server 3.0 *Day 3*
	SAT	3rd	*BULLET [2-day]* NETWARE 3.11 [Installation thru Advanced for Professionals] *Day 1*
	SUN	4th	*BULLET [2-day]* NETWARE 3.11 [Installation thru Advanced for Professionals] *Day 2*
	MON	5th	NETWARE 4.0 System Administration [Module 1] *Day 1*
	TUE	6th	NETWARE 4.0 System Administration [Module 1] *Day 2*
	WED	7th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 3*
	THU	8th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 4*
	FRI	9th	*BULLET* Fine-Tuning NETWARE LANS & Networking Devices for MAXIMUM PERFORMANCE
	SAT	10th	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals
	SUN	11th	Easter Day
	MON	12th	UNIX-Ware Workstation
	TUE	13th	UNIX-Ware Applications Server *Day 1*
	WED	14th	UNIX-Ware Applications Server *Day 2*
	THU	15th	LAN Workplace – TCP/IP
	FRI	16th	NFS
	SAT	17th	NETWARE 4.0 System Administration [Module 1] *Day 1*
	SUN	18th	NETWARE 4.0 System Administration [Module 1] *Day 2*
	MON	19th	OS/2 2.0 Advanced *Day 1*
	TUE	20th	OS/2 2.0 Advanced *Day 2*
	WED	21st	IBM LAN Server 3.0 *Day 1*
	THU	22nd	IBM LAN Server 3.0 *Day 2*
	FRI	23rd	IBM LAN Server 3.0 *Day 3*
	SAT	24th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 3*
	SUN	25th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 4*
	MON	26th	*BULLET* Diagnosing, Analyzing, Trouble-Shooting NETWARE LAN's
	TUE	27th	*BULLET* Fine-Tuning NETWARE LANS & Networking Devices for MAXIMUM PERFORMANCE
	WED	28th	*BULLET* RECOVERING NETWARE SYSTEM 2.x/3.x DATA & PASSWORDS
	THU	29th	*BULLET* NETWARE LANalyzer for Windows. Includes Mngmt. Analysis & Trouble-Shooting
	FRI	30th	*BULLET* Integrating MacIntosh into NETWARE Networks
May			
	SAT	1st	NETWARE 4.0 Hands-On Seminar IS IT RIGHT FOR YOU?
	SUN	2nd	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals
	MON	3rd	NETWARE 4.0 System Administration [Module 1] *Day 1*
	TUE	4th	NETWARE 4.0 System Administration [Module 1] *Day 2*
	WED	5th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 3*
	THU	6th	NETWARE 4.0 Advanced System Administration [Module 2] *Day 4*
	FRI	7th	S.F.T. Level III Hands-On/Live!
	SAT	8th	Bridges, Routers & Inter-Networking *Day 1*
	SUN	9th	Bridges, Routers & Inter-Networking *Day 2*
	MON	10th	*BULLET* Integrating MacIntosh into **NETWARE** Networks
	TUE	11th	*BULLET* Integrating OS/2 into NETWARE LAN's
	WED	12th	*BULLET* NETWARE Packet Burst Communications & Packet Filtering Technology
	THU	13th	S.F.T. Level III Hands-On/Live!
	FRI	14th	*BULLET* Fine-Tuning NETWARE LANS & Networking Devices for MAXIMUM PERFORMANCE
	SAT	15th	NETWARE 4.0 Hands-On Seminar IS IT RIGHT FOR YOU?
	SUN	16th	*BULLET* Upgrading to NETWARE 4.0 for 3.11 Professionals

EVENING CLASSES
Call for Evening Class Schedule

TRAINING on 486/50's

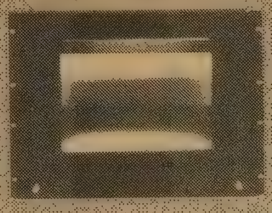
Centrally Located at 12th Street/City Center **BART Station**

MIS Services, Inc. • 436 Fourteenth St., Suite 1030, Oakland, CA, 94612 • (510) 208-5700

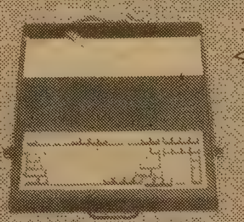
19" RACKMOUNT ENCLOSURE

CALL

19" RACKMOUNT MONITOR KIT $280



19" RACKMOUNT KEYBOARD $220



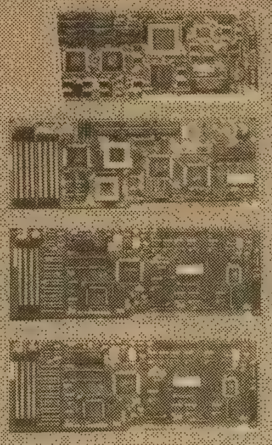
PASSIVE BACKPLANE BOARD

6 SLOT	$53
8 SLOT	$35
12 SLOT	$90
14 SLOT	$94
18 SLOT	$180
20 SLOT	$194

• Special slot configuration available

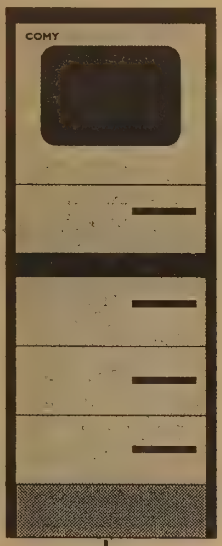
SINGLE CPU BOARD

Guaranteed high reliability. 100% SMD board.



286C-12 w/CPU	$125
386SXC-16 w/CPU	$220
386SXC-20 w/CPU	$280
386DXC-33 w/CPU	$380
486DXC-33 w/oCPU	$550

MMS CENTRALIZED LAN STATION SYSTEM

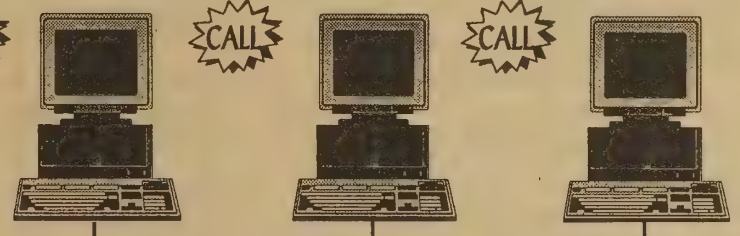


MMS CENTRALIZED LAN STATION SYSTEMS ARE A FAMILY OF RACK MOUNT SYSTEMS THAT ARE CUSTOM DESIGNED AND CONFIGURED TO MEET YOUR SPECIFIC CONNECTIVITY REQUIREMENTS.

WE INSTALL AND SERVICE NETWORK SYSTEMS. ALL OF OUR WORK IS GUARANTEED TO MEET OR EXCEED YOUR REQUIREMENTS. CALL FOR CONSULTATION.

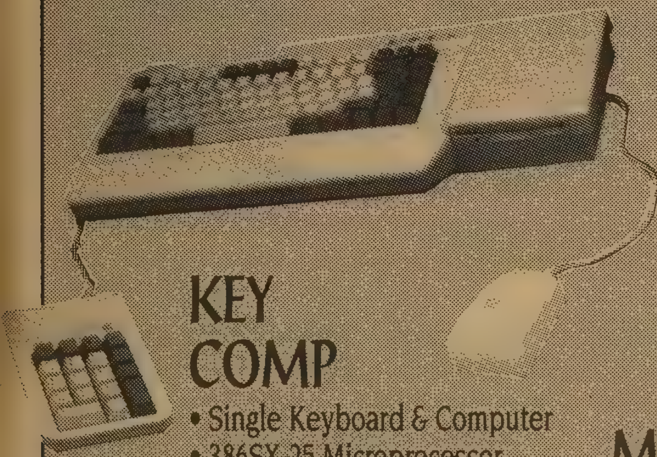
1ST RACK (SALES)
19" KEYBOARD DRAWER IU
2ND RACK (PURCHASING)
3RD RACK (ACCOUNTING)
4TH RACK (PRODUCTION CONTROL)

UPGRADABLE LAN STATIONS



CALL CALL CALL

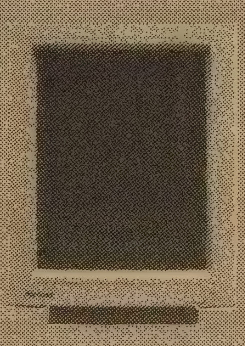
486DXC-33 386DXC-33 286-12C

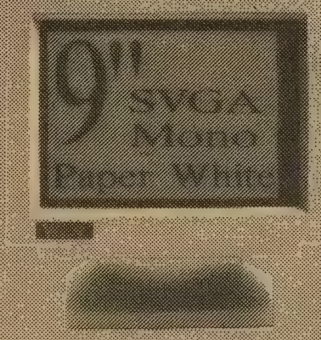


KEY COMP

- Single Keyboard & Computer
- 386SX-25 Microprocessor
- AMI Bios
- 2MB RAM Exp. to 16MB
- 1.44MB 3.5" FDD
- 85MB HDD
- SVGA w/1MB
- MS-DOS 5.0
- MS-Windows 3.1
- 3 Button Mouse

$880





MONITORS

9" SVGA Monochrome	$102
14" SVGA Interlaced	$260
14" SVGA Non-Interlaced	$300
15" VGA Mono Full Page	$250

9" SVGA MONOCHROME MONITOR
- CRT 9" & 90 DEFLECTION
- NON-GLARE, PAPER WHITE, PHOSPHOR
- RES: 1024 X 768, 800 X 640, 720 X 400, 640 X 480

15" FULL PAGE MONITOR
- CRT: 15" DIAGONAL NON-GLARE FLAT 90 DEFLECTION, PAPER WHITE
- RES: 640 X 600 FULL PAGE
  640 X 550 FULL PAGE
  640 X 350 LANDSCAPE
  720 X 400 LANDSCAPE
  640 X 480 LANDSCAPE
- SUPPORTS THESE S/W APPLICATIONS: LOTUS 1-2-3 V.2.0, MS WINDOWS V.3, MS WORD, MS WORKS 2.0, PAGEMAKER 4.0, PC-WRITE, PROCOM PLUS 2.0, WORD PERFECT 4.2, 5.0, AND 5.1

Multi-Micro systems

TEL: (408) 456-0333
(800)-875-0333
FAX: (408) 456-0366

Terms & Conditions
Prices subject to change without notice. Not responsible for typos or errors. Prices based on cash. Please ask about products not listed in this advertisement. 1 year warranty on parts.

MasterCard VISA

62 Bonaventura Drive • San Jose, CA 95134 • Mon-Fri: 9am-6pm

DIY—Wills And Trust Software

Consumer Software For Preparing Wills And Trusts Allows Many Individuals To Produce Legal Documents, But That Is Only Part Of The Story

BY DAVID A. SIMON, CPA AND JENNIFER ROBIN CHERNISS

A story in the news the other day said that lawyers in the state of Texas were fighting the emergence of software for write-your-own wills and trusts. Right away, I knew this was something I had to have.

The cover of Nolo Press's Living Trust software states the case for preparing a living trust and for doing it yourself:

"Save your family the hassles of probate...
- Avoid probate simply and safely
- Save on lawyer's fees
- Leave property to family, friends & charities."

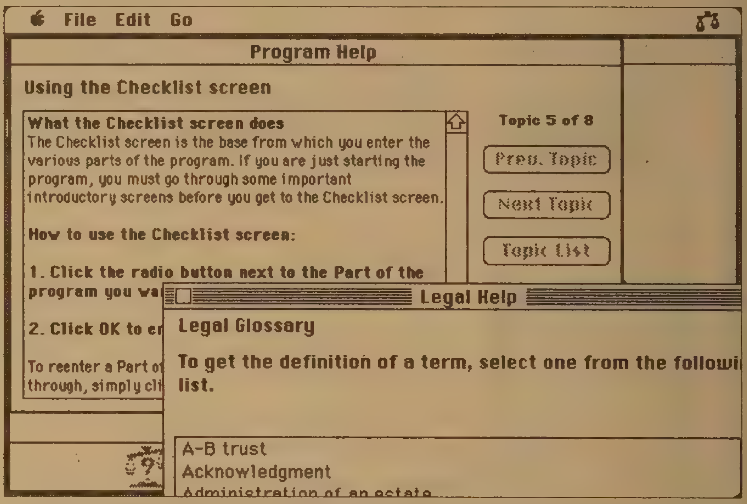
For those concerned about their lack of legal expertise for these issues, Nolo reassures, "Our products come with a comprehensive book that explains the legal concepts you will be dealing with. Our programs also feature online help, so you'll be confident you're making well-informed decisions every step of the way."

Indeed, Nolo's reputation, experience, and integrity in do-it-yourself legal products are highly regarded.

But John A. Owen, an East Bay attorney specializing in probate law, states the opposing case. "These fill-in-the-blank computer programs are just as dangerous as they can be, and often they're not properly administered. We just had a big to-do about these things over at the [State] bar. Living trusts may be the fraud of the '90s when they're not prepared by a qualified attorney for the individual client."

What about saving attorney fees by doing it yourself? Mr. Owen says, "On the contrary, these do-it-yourself programs are just hay for lawyers. I've seen a few—I'm in litigation over one right now. Most of the estate will wind up going to legal fees. Had the thing been set up and administered properly, no problem."

Who do you believe in this controversy? It turns out they're both right. Consumer software available for preparing wills and trusts allows many individuals to produce perfectly valid legal instruments (in most states), to do so fairly easily, and (for legal tyros) the better packages go a long way toward taking some of the mystery out of the financial aspects of death. On the other hand, without an understanding of the software's limitations, an oversimplified approach to estate planning can imperil all your good intentions and a lifetime of capital accumulation that should be enjoyed by your heirs.



Using the Checklist screen

What the Checklist screen does
The Checklist screen is the base from which you enter the various parts of the program. If you are just starting the program, you must go through some important introductory screens before you get to the Checklist screen.

How to use the Checklist screen:

1. Click the radio button next to the Part of the program you wa

2. Click OK to e

To reenter a Part o
through, simply cl

Topic 5 of 8

Legal Glossary

To get the definition of a term, select one from the followi
list.

A-B trust
Acknowledgment
Administration of an estate

Nolo's Living Trust provides separate legal and program help available throughout the program.

PLANNING FOR DEATH AND TAXES—THE BIG PICTURE

Drafting a will or trust, which in itself may involve sophisticated tax planning devices, is only one aspect of estate planning.

The goals of estate planning are threefold: 1) minimize income, estate, and inheritance taxes; 2) reduce probate and associated property transfer costs; and (3) conserve and enhance principal currently and after death. On the practical and emotional level, such planning must be consistent with how you want your property used before and after you die. Trust software is generally designed to cover only the second of these goals.

Traditionally, estate planning was the domain of CPAs and attorneys. It's easy to see why—a review of estate tax law and planning techniques could consume a technical treatise many volumes in length. Conflicts between objectives of estate and income tax planning often need to be addressed by a tax advisor familiar with individual, corporate, and partnership income taxation, as well as estate taxation.

Despite the complexities, several vendors offer consumer software to prepare basic wills and trusts. Many people do quite well with this relatively simple approach, but others die clueless of important estate planning opportunities. The problem is to determine if do-it-yourselfing is sufficient for your needs, and if so, which package is best for you.

SOFTWARE OPTIONS

To explore how these products are used, I have selected software by two vendors.

It's Legal, by Parson's Technology ($69) offers an all-in-one package. It's Legal generates simple wills, living trusts, an estate planning worksheet, a power of attorney which takes effect in the event of incapacity, and a variety of additional forms, such as leases and employment agreements.

Nolo Press offers two software products, Nolo's Living Trust ($79.95), and WillMaker ($69.95). Nolo also offers a book, "Plan your Estate with a Living Trust" by Denis Clifford ($19.95—discount available for direct orders).

Both Living Trust and It's Legal will generate a basic living trust. Mechanically, I found both easy to use. I generated the documents in minutes each, using no other documentation than that provided for software installation. Within fifteen minutes, a trust was rolling off my laser printer (obviously, it could take a person unfamiliar with wills and trusts much longer).

The Nolo and Parson's programs take sty-

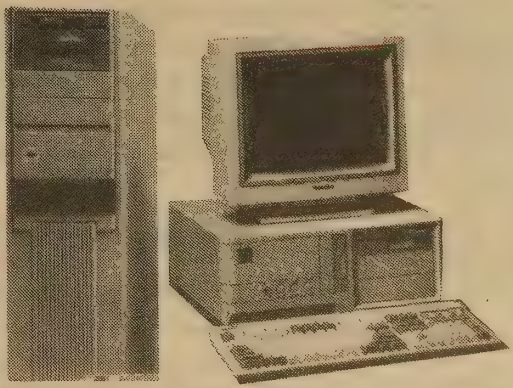
Copyright © 1993 by David Simon. All rights reserved.
David Simon, CPA (M.S., Taxation), is in tax and accounting practice in Oakland. His clients include a variety of professionals and businesses. He can be reached at (510)893-5753. Jennifer Robin Cherniss is a free-lance writer based in Berkeley.

Great Service! Great Prices!

FFC Class "B" Approved Systems!

5 Year Labor, 1 Year Parts Warranty • Manufacturer Direct Since 1984

MODEL	MB+ CPU	BASIC SYSTEM	BASIC SYS +40MB HDD +MGP CARD & MONO MONITOR	BASIC SYS +80MB HDD +SVGA CARD & SVGA MONITOR	BASIC SYS w/1.2 & 1.44 FDD +120MB HDD +SVGA CARD & SVGA MON	BASIC SYS w/1.2 & 1.44 FDD +200MB HDD +SVGA CARD & SVGA MON
486DX2-66 EISA W/64K	$790	$960	$1170	$1420	$1510	$1600
486-50 EISA W/64K	690	860	1070	1320	1410	1500
486-33 EISA W/64K	546	720	930	1180	1270	1360
486DX2-66 ISA W/64K	645	815	1025	1275	1365	1455
486-50 ISA W/64K	490	666	870	1120	1210	1300
486-33 ISA W/64K	270	440	650	900	990	1080
486SX-25	225	395	605	855	945	1035
386-40 W/64K	150	310	520	770	860	950
386-33 W/64K	148	312	522	772	862	952
386-25DX	130	290	500	750	840	930
386SX-40	104	274	484	734	824	914
386SX-33	92	252	462	712	802	892
386SX-25	84	244	454	704	794	884
286-20	62	222	432	682	772	862



BASIC SYSTEMS INCLUDE:
- Baby case & power supply
- Motherboard & CPU
- 1MB RAM installed
- 1.2MB or 1.44MB Floppy Drive
- 1:1 2HD/FD Controller
- Internal Clock/Calendar
- Math Coprocessor socket
- 101 Enhanced Keyboard

VESA LOCAL BUS SYSTEM

486 VESA Local Bus Motherboard
Genova VESA 32 Bit Local Bus Video Board
+ Basic System

486-50 w/256K Cache	$890
486-33 w/256K Cache	$760

MULTI MEDIA UPGRADE KIT

"Super Entertainment"

Includes
- Thunder Audio Card
- MPC CD ROM Drive
- FREE Speakers
- FREE CD with 8 Software titles:

ONLY $495

-Microsoft Windows
-Microsoft Bookshelf
-Mother Goose
-King Quest V
-Wild Place
-Worldview
-Sound Library
-MPC Wizard

SYSTEM UPGRADES

VIDEO CARDS & MONITORS

ATI Ultra Pro VESA Local Bus w/2MB, 33MHz Only	$420
ATI Ultra Pro w/2MB 1280x1024, Win. Accel	400
ATI Ultra Plus w/2MB 1280x1024, Win. Accel	300
ATI Ultra w/1MB w/Mouse 1280x1024, Win. Accel	245
Diamond Stealth w/1MB 1280x1024 VESA Local Bus, Accel.	160
Diamond Speed 24X 1MB Hi Color	160
ORCHID ProDesigner IIS (EISA) w/1MB Hi-Color	155
ORCHID 801 w/1MB 1280x1024	135
ORCHID 801-VA 1280x1024 w/1MB	170
TSENG Lab VGA w/1MB	77
AVGA III w/1MB Windows Accelerator	77
SOCOS Monitor 15", 1280x1024, .28	420
NEC 3FGX 15", 1024x768, .28	625
NEC 4FG 15", 1024x768, .28	735
NEC 5FG 17", 1024x768 .28	1305
NEC 6FG 21", 1280x1024 .28	2320
ARCH 17" 1280x1024 .28	789
VIEWSONIC 4E/5E/5+	280/385/485
VIEWSONIC 6E/6FS/7/8	320/550/950/1515

CONTROLLER

IDE 2FD/2HD	$12
IDE 2FD/2HD with 2S/1P/1G	16
Ultrastor SCSI 14F (ISA)	225
Ultrastor SCSI 24F (EISA)	415
Adaptec SCSI 1542Bk w/Kit (ISA)	236
Adaptec SCSI 1742 AK (EISA)	405
VESA Local Bus Controller 2FD/4HD exp to 16M	199

HARD DRIVES

80MB 18ms IDE	$180
100MB 18ms IDE	200
120MB 16ms IDE	220
170MB 16ms IDE	245
200MB 16ms IDE	315
340MB 15ms IDE	480
520MB 12ms IDE/SCSI	850

CASES

Tower Case full size, 6 drives, 285wps	$105
Tower Case medium size, 6 drives, 200wps	80
Tower Case mini size, 5 drive, 2000wps	55

MISCELLANEOUS

AT I/O (2S/1P/1G)	$11
Serial Card/ Parallel Card/Game Card	11
Fax Modem (9600 Fax, 2400 Modem)	53
Fax Modem (14,400 Fax, 14,400 Modem)	190
True 16-Bit Stereo Sound Card	CALL
2400 Int. Modem	31
Serial Mouse	13
Power Center	14
Colorado Backup 120/250MB	165/215
SONY CD ROM CDU31A/541	260/415
CYRIX 387 DX-33/40 Math C	67/89
CYRIX 387 SX-25/33 Math C	67/76
INTEL 387 DX-25/33 Math C	65/72
16-Bit Ethernet Card 10 Base-T	65
SIMM/CPU/SRAM/DRAM	LOWEST

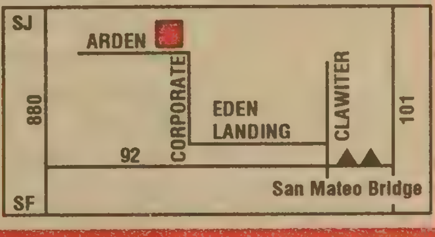
Government, Corporate, University, & VAR Inquiries and PO's Welcome

Prices subject to change without notice. Not responsible for typographical errors.

MCTechnology

3518 Arden Road
Hayward, CA 94545

(510) 670-0636
FAX (510) 670-0790
Hours M-F 9-6 SAT 10-4
Pacific Time



RESOURCES:

John A. Owen, Probate Attorney
Lake Merritt Plaza,
Oakland
(510)376-7873

David A. Simon, CPA
Lake Merritt Plaza,
Oakland
(510)893-5753

Nolo Press
950 Parker St.
Berkeley, CA 94710
(510)549-1976

Parson's Technology
One Parsons Dr.
Hiawatha, Iowa 52233
1-800-223-6925

"Residence GRITS Still Offer Estate Tax Savings"
By Howard M. Esterces
Taxation for Accountants, Jan. 1992

listically different approaches. Nolo walks the user through a series of question-answer screens, providing blanks to fill in and boxes to select. The user of It's Legal scrolls through legal text and selects those provisions to be incorporated in the document.

Both programs include extensive online help, but Nolo offers a more detailed book with the software, plus a standalone book that can be purchased separately. The book provides a substantial amount of basic guidance beyond that included with the software.

PROBATE, TRUSTS, AND WILLS

Before considering any estate planning software, you should have an understanding of what probate is, and a realistic expectation of what the software can do for you.

Probate is the court-supervised distribution of property after death. Property which is distributed under a will must be probated. The process can be expensive, and is often protracted. Also, the probate process lacks confidentiality.

One way to avoid probate is by placing your property in a living (also called inter vivos) trust. A living trust holds your property while you are alive; hence the name. After your death a trustee identified in the document distributes the property in the manner you so designated. The property in a living trust bypasses the probate system and goes directly to the trust beneficiaries—the people you named to inherit it. Usually, this can be done quickly and confidentially, with no need for courts or lawyers.

The problem is to determine if do-it-yourselfing is sufficient for your needs, and if so, which package is best for you.

However, notes attorney Owen, "Many times, a probate is the best. When there are disputed claims, probate provides the opportunity for judicial review and lets the court settle the matter. Also, if these pre-programmed estate plans are done incorrectly, they can result in legal fees much greater than ordinary probate fees, just to correct the errors."

If you do prepare a living trust, you still need to consider whether or not to add a will. (A will is simply your instruction to the court as to how you want your property dispersed in probate.) Wills are often used in conjunction with trusts because there is typically some property which had not been placed in trust or, for other reasons, must be probated.

But for many people, the most important element in an estate plan may be the way property is titled. Although write-your-own trust software may accommodate various forms of title, the user should be aware of these non-trust alternatives to avoiding probate, and their consequences.

TITLE ALTERNATIVES

For example, Frank and Rachel have considered placing their personal residence and their investments into a trust to avoid probate fees upon the death of either.

Instead of a trust, Frank and Rachel should consider holding their assets in joint tenancy providing for survivorship rights. This, too, would facilitate a deathtime transfer without probate complexities. Adverse tax consequences, however, may eventually occur with this form of title.

Frank and Rachel might even consider the use of a qualified personal residence trust. This device involves the title transfer of a residence to a trust, with Frank and Rachel retaining the right to use the residence for a specified number of years. Typically, trust provisions would permit them to remain in the home for life, even after the end of their specified fixed term, which they select on the basis of tax calculations. After that, title to the residence passes to named beneficiaries.

Through this device, their children will inherit the home, possibly at a deep discount for estate and gift tax purposes. In addition, future appreciation of the residence will be kept out of Frank and Rachel's taxable estate. Because local property prices are currently depressed and will no doubt improve, this strategy now offers unprecedented opportunity for estate tax savings and reduction of gift tax values.

(Qualified personal residence trusts are covered in an article from the January 1992, issue of *Taxation for Accountants*; please call my office at [510]893-5753 for a complimentary reprint, courtesy of the publishers, Warren, Gorham & Lamont.)

Prior to choosing whether or not you even want to employ a living trust, it's important to take alternatives such as these, and their consequences, into consideration.

If Frank and Rachel do decide to draft a qualified personal residence trust using their trust software as a template, they will need to customize it by adding certain specific qualifying provisions. Revocable living trusts generated with Living Trust and It's Legal are designed to avoid probate, but not to help you save on estate taxes.

SPOUSAL TRUSTS

There is no estate tax on property you left to a spouse who is a US citizen. Beyond this, an exemption provides that your estate won't be taxed unless the total property transferred at death, plus taxable gifts made while you were alive, exceeds $600,000. If both spouses' estates fit into this category, trust and will software may be useful to you with minimum risk from missed estate tax opportunities.

If you are married and your spouse and you have a combined estate in excess of $600,000, you may benefit from a spousal trust.

To understand a spousal trust, suppose Ed and Jane are a married couple with $1 million. Ed dies first, leaving his share of their property to Jane. Ed's estate won't be taxed because transfers to a spouse are tax free. But suppose Jane then dies in possession of $1 million, including what she received from Ed. Because only the first $600,000 passes free of estate tax, her estate (otherwise passed on to the kids) will owe a sizable tax.

Ed has not taken advantage of his opportunity to leave $600,000 tax free to whomever he wants; for example, his children. Instead, all of Ed's property plus all of Jane's property got bunched into Jane's estate, thereby shifting his estate tax burden to her.

One way around this is for Ed to place property in a spousal trust. When Ed dies, $600,000 of "his" property (less any taxable gifts he made) can be passed tax free into the trust. Jane receives certain rights to use the trust. When she dies, what remains of the trust property is passed to their children. If a host of conditions are met, Jane can thereby exclude any of the trust property from her own taxed estate, even though she benefits from it for the rest of her life.

Neither Living Trusts nor It's Legal are designed to generate spousal trusts, which are frequently used by professional estate planners. However, Nolo's package will establish a child's subtrust which will take advantage of Ed's opportunity to leave $600,000 tax free.

Many married people have the mistaken belief that they do not need a spousal trust because their combined assets are not worth $600,000. However, that $600,000 figure includes transfers of many kinds of property interests that are often overlooked; for example, the value of retirement plans and proceeds of life insurance policies.

The do-it-yourselfer should keep in mind that preparing a trust or will is only one of many aspects of estate planning. Just because you've polished off letter-perfect testamentary instruments doesn't mean you can call it quits. Your first job is to decide if do-your-own software is the best you can do. ■

It's a MIRACLE
SERVICE, SERVICE, AND MORE SERVICE!

ORCHID

SUPERBOARD 486 VESA LOCAL BUS SYSTEM WITH 256K CACHE

- 4 MB RAM Exp. to 32 MB
- 2 32-Bit Local Bus Slots
- Med Tower Case/Power Supply
- Super IDE/VLB Controller
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 200 MB HD
- Serial/Parallel/Game Card
- Orchid Fahrenheit VLB Card
- Super VGA 1024x768 Non-Interlaced Color Monitor
- 101 Keyboard
- MS DOS 5.0

486DX-33 *$2099*
486DX-50 *$2299*
486DX2-66 *$2375*

MICRONICS COMPUTERS INC.

486 VESA LOCAL BUS SYSTEM WITH 256K CACHE

- 4 MB RAM Exp To 64 MB
- 2 32-Bit Local Bus Slots
- Med Tower Case w/Power Supply
- Super IDE/VLB Controller
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 200 HD
- Serial/Parallel/Game Card
- Orchid Fahrenheit VLB Card
- Super VGA 1024x768 Non-Interlaced Color Monitor
- 101 Keyboard
- MS-DOS 5.0

486DX-33 *$2099*
486DX-50 *$2299*
486DX2-66 *$2375*

486 VESA LOCAL BUS SYSTEM WITH 256K CACHE

- 4 MB RAM Exp To 64 MB
- 2 32-Bit Local Bus Slots
- Med Tower Case w/Power Supply
- Super IDE/VLB Controller
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 200 HD
- Serial/Parallel/Game Card
- Stealth 24 VLB Card
- Super VGA 1024x768 Non-Interlaced Color Monitor
- 101 Keyboard
- MS-DOS 5.0

486DX-33 *$2099*
486DX-50 *$2299*
486DX2-66 *$2375*

VIDEO CARDS

ORCHID P9000/VLB	$465
ORCHID FAHRENHEIT VA/VLB	229
ORCHID FAHRENHEIT VLB	195
ORCHID FAHRENHEIT 1280 PLUS	165
DIAMOND SPEEDSTAR 24X	159
DIAMOND STEALTH PRO 1MB	265
DIAMOND STEALTH 24VLB	195
DIAMOND STEALTH PRO VLB	275
DIAMOND VIPER VLB	355
MATROX IMPRESSION 1024	655
MATROX IMPRESSION ULTRA	3445
ATI GRAPHICS ULTRA PRO	425

MONITORS

VIEWSONIC 6E .28mm NON-INT	$335
VIEWSONIC 5E .28mm 72Hz	395
VIEWSONIC 6FS 15" .28mm 72Hz	535
VIEWSONIC 7 17" .28mm 72Hz	949
NANAO F550i 17" .28mm 1280x1024	1149
NANAO F340i 15"	725
NEC 4FG/5FG	785/1279
SONY CDP-16045 17" .25MM 1024	995
MAG 15F 15"	575

FLOPTICAL DRIVES

IOMEGA

FLOPTICAL INSIDER 21 MB INT	$475
FLOPTICAL PC POWERED EXT 21 MB	515
VALUESTOR 21 MB FLOPTICAL KIT	355

486DX-256K Cache

- 80486 256K Cache Motherboard
- 4 MB RAM Expandable to 32 MB
- Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 120 MB HD
- Serial/Parallel/Game Card
- Super VGA 1024 x 768 Monitor & 1 MB Card
- 101 Keyboard
- MS DOS 5.0

486DX-33 *$1437*
486DX-50 *$1582*
486DX2-66 *$1665*

386SX-33 MHz

- 386/33 MHz Motherboard
- 4 MB RAM Expandable to 16MB
- Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 120 MB HD
- Serial/Parallel/Game Card
- Super VGA 1024 x 768 Monitor & 1 MB Card
- 101 Keyboard
- MS DOS 5.0

$995

386DX-33 MHz With 64K Cache

- 80386-33 MHz 64K Cache Motherboard
- 4 MB RAM Expandable to 32MB
- Case/Power Supply
- IDE (Hard/Floppy) Control
- TEAC 1.2 MB Floppy Drive
- TEAC 1.44 MB Floppy Drive
- MAXTOR/CONNER 120 MB HD
- Serial/Parallel/Game Card
- Super VGA 1024x768 Monitor & 1 MB Card
- 101 Keyboard
- MS DOS 5.0

$1099
386DX-40 MHz..SAME PRICE

CONTROLLERS

ADAPTEC

1542 B SCSI w/Kit	$255
1542 B Plus w/ASW3104410	325
1742 A SCSI EISA w/Kit	459

DTC:

2270 VLB IDE	$95
2290 IDE EISA	135
3280 SCSI	105
3290 SCSI EISA 512K	479

ULTRASTOR:

ULT 15C IDE Cache	$189
ULT 24F SCSI EISA Cache	395
ULT 34F SCSI-2 VLB 32K	295

FAX/MODEMS

USRobotics	SPORTSTER 14,400	INT ... $329 EXT .. $369
COMPUTER PERIPHERALS, INC.	VIVA	INT ... $225
BOCA RESEARCH INC	V.32 bis V.42 bis 14,400	INT ... $225 EXT .. $295
PRACTICAL PERIPHERALS	V.32 bis V.42 bis 14,400	EXT .. $375
ZOLTRIX 9624		INT $69
	14.4/14.4	INT ... $215
	14.4/14.4	EXT .. $295
ZYXEL U-1496E		EXT .. $335
ZOOM	V.32bis V.42bis 14,400	INT ... $235 EXT .. $289

HARD DRIVES

CONNER:

CP-30104 120 MB	$225
CP-30174E 170 MB	279
CP-30204 200 MB	345
CP-3544 540 MB	899

QUANTUM:

LPS-240AT 244 MB	$425
LPS-240S 244 MB	475
PRO-1225S 1.2 GB	1555

MAXTOR:

MXT-7120A 130 MB	$235
MXT-7213A 213 MB	345
LXT-340A 340 MB	575
LXT-535A 535 MB	899
LXT-213S 200 MB SCSI	495
LXT-5355 535 MB SCSI	975

MICROPOLIS:

2112 5051 1.2GB	$1695

*** DEALER INQUIRIES WELCOME!**
*** PRICES REFLECT COD**
*** FINANCING AVAILABLE!**
*** OFFICE HOURS: MON-SAT 9:00 TO 5:30**

TERMS:

* One year warranty on parts and Two Years Labor
* 30 Day Money Back Guarantee
* All merchandise returned must be in original packaging along with RMA number
* All prices and specifications are subject to change w/o notice

VISA MasterCard

NO SURCHARGE ON CREDIT CARDS!

MIRACLE

SINCE 1985

780 MONTAGUE EXPWAY, #202
SAN JOSE, CA 95131
TEL: (408) 435-8177 FAX: (408) 435-8179

FOR ORDERS CALL:

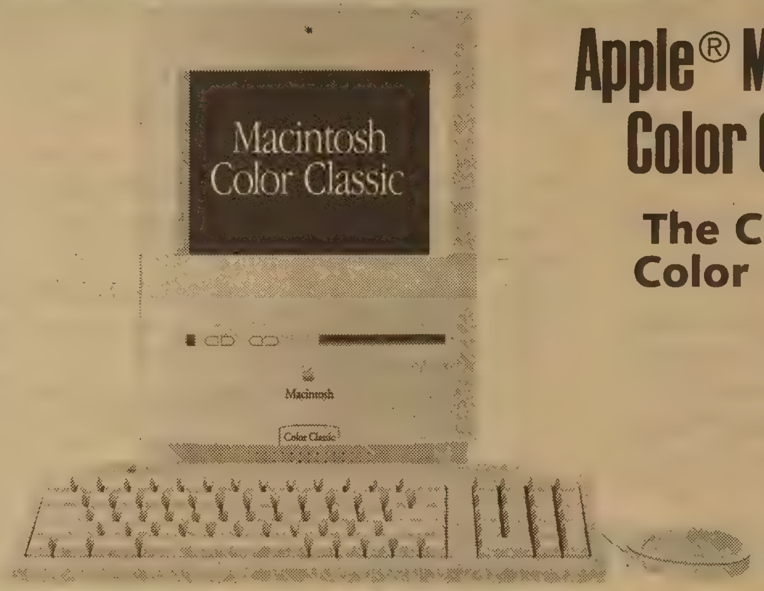
1-800-969-8177

Authorized PANASONIC, CITIZEN, STAR, OKIDATA Sales & Service Center

We'll Match Any Price From Any Authorized Apple® Reseller On Any Apple® Product!*

NEW!

new (noo nyoo), *adj.* **1.** of recent origin, production, purchase;etc.; having but lately come or been brought into being: *a new book.* **2.** of a kind now existing or appearing for the first time; novel: *a new concept of the universe.* **3.** having but lately or but now known: *a new chemical element.* **4.** unfamiliar or strange (often fol. by *to*): *ideas new to us.*



Apple® Macintosh® Color Classic®

0% FINANCING 6 FOR 6 MONTHS

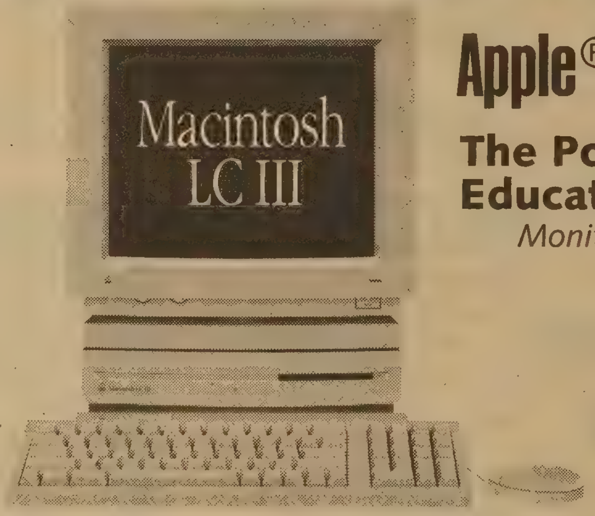
The Complete Color Package.

4 MB/80 HD
$1299
$41 Month Business Lease*

WAREHOUSE PRICING!

NEW!

new (noo nyoo), *adj.* **1.** of recent origin, production, purchase;etc.; having but lately come or been brought into being: *a new book.* **2.** of a kind now existing or appearing for the first time; novel: *a new concept of the universe.* **3.** having but lately or but now known: *a new chemical element.* **4.** unfamiliar or strange (often fol. by *to*): *ideas new to us.*



Apple® Macintosh® LCIII

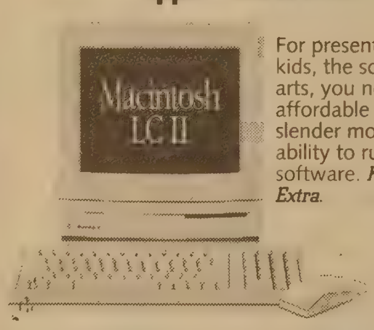
0% FINANCING 6 FOR 6 MONTHS

The Powerful Choice for Education and Business.

Monitor and keyboard extra.

4 MB/80 HD
$1245
$39 Month Business Lease*

Apple® Macintosh® LCII



For presentations, education, kids, the sciences, and the arts, you need color! The affordable LC II, with its slender modular design and ability to run all your favorite software. ***Keyboard & Monitor Extra.***

4 MB/40 HD
$849

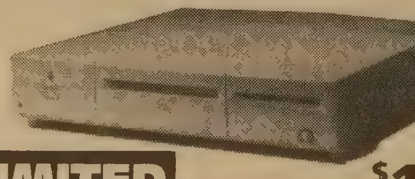
4 MB/80 HD
$999

Apple® Macintosh Centris™ 610

0% FINANCING 6 FOR 6 MONTHS

NEW!

4 MB RAM / 80 MB HD.
Exceptional Processing Power at an Affordable Price.



LIMITED AVAILABILITY

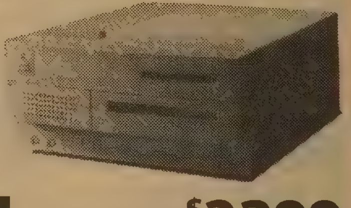
M1345CC/A **$1699**
Keyboard & Monitor Extra

Apple® Macintosh Centris™ 650

0% FINANCING 6 FOR 6 MONTHS

NEW!

4 MB RAM /
80 MB HD.
High Performance.
Maximum Flexibility.



LIMITED AVAILABILITY

M1276C6/A **$2399**
Keyboard & Monitor Extra

*LIMITED QUANTITIES ON SOME PRODUCTS - SEE STORES FOR AVAILABILITY LEASING AVAILABLE THROUGH AT&T. PRICES BASED ON 48 MONTH LEASE WITH 10% BUYOUT OPTIONAL
*Reseller must have product in stock in order to qualify for price matching.. Errors subject to correction. Prices subject to change without notice.

Authorized Reseller

©1992 Apple Computer, Inc. Apple, the Apple logo, Macintosh, LaserWriter, StyleWriter, AppleTalk, and Mac are registered trademarks of Apple Computer, Inc. Macintosh Quadra, System 7, TrueType, Macintosh Duo, Macintosh Centris and PowerBook are trademarks of Apple Computer, Inc. Classic is a registered trademark licensed to Apple Computer, Inc. PostScript is a trademark of Adobe Systems, Inc.

WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm
Ad expires 4-1-93

We'll Match Any Price From Any Authorized Apple® Reseller On Any Apple® Product!*

The New Incredibly Compact Notebook!

Apple® Macintosh® PowerBook Duo™ 210

0% FINANCING 6 FOR 6 MONTHS

The Best of Both Worlds!

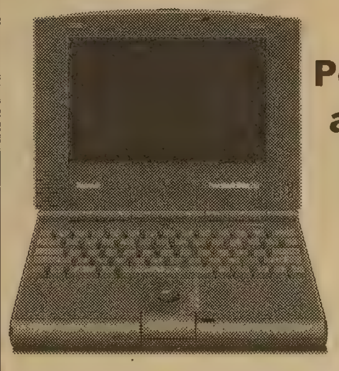
$61 Month Business Lease*

4 MB/80

$1925

Apple® Macintosh® PowerBook Duo™ 230

0% FINANCING 6 FOR 6 MONTHS



High Performance at home or away!

4 MB/120

$2595

$82 Month Business Lease*

Apple® Macintosh® PowerBook™ 160

Macintosh PowerBook 160

A16-level grayscale display for realistic graphics, and comes with on-board video-out capabilities with built-in support for a variety of monitors—a powerful advantage for traveling presentations or editing artwork on the road.

$68 Month Business Lease*

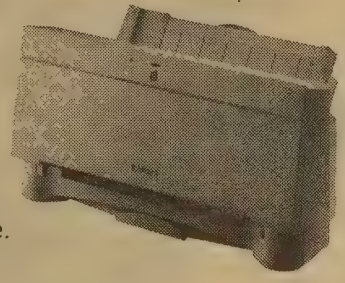
4 MB/40

$2179

WAREHOUSE PRICING!

Apple® StyleWriter® II

New



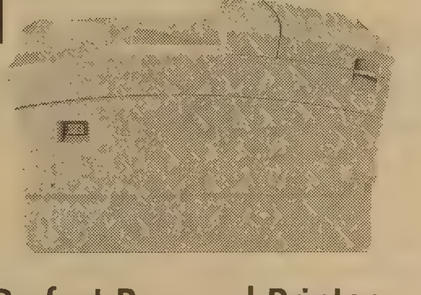
The new StylerWriter II printer gives laser quality printing at an affordable price.

LIMITED AVAILABILITY

$339

Apple® LaserWriter® Select 300

New



The Perfect Personal Printer.

$799

Apple® LaserWriter® Pro 600

0% FINANCING 6 FOR 6 MONTHS

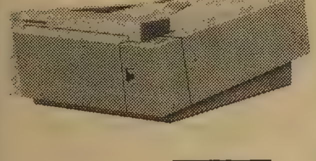
The new LaserWriter Pro 600 is the perfect choice for high performance printing.

$62 Month Business Lease*

$1949

Apple® Personal LaserWriter® NTR

0% FINANCING 6 FOR 6 MONTHS



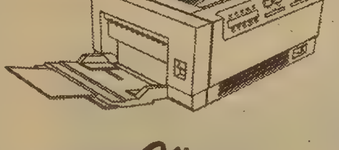
Connect simultaneously to Apple Macintosh® and MS-DOS computers! The NTR will pump your text out fast and make your art look gorgeous with a modern RISC controller and advanced page description language.

$1499

$49 Month Business Lease*

QMS-PS 410 Printer

0% FINANCING 6 FOR 6 MONTHS



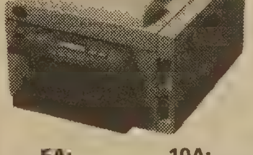
QMS-PS 410

4 page-per-minute PostScript® printer with all the most requested features at an affordable price. True Adobe PostScript, 45 resident fonts & ATM technology built-in, works with IBM and Apple® Macintosh® computers, 16 MHz 68020 processor.

IBM® Laser Printer 6A & 10A

LEXMARK Authorized Dealer

0% FINANCING 6 FOR 6 MONTHS



Nobody beats IBM for affordable high-resolution output from your Apple Macintosh®. Check these features: bi-directional AppleTalk, true Adobe PostScript, small footprint, superior paper handling, contrast and darkness controls, built-in text smoothing. Plus, the 10-page-per-minute 10A comes standard with 600 DPI resolution! (The 6-page-per-minute 6A easily upgrades to 600 DPI.)

6A: 1799

10A: 2295

*LIMITED QUANTITIES ON SOME PRODUCTS - SEE STORES FOR AVAILABILITY LEASING AVAILABLE THROUGH AT&T. PRICES BASED ON 48 MONTH LEASE WITH 10% BUYOUT OPTIONAL *Reseller must have product in stock in order to qualify for price matching.. Errors subject to correction. Prices subject to change without notice.

® IBM is a registered trademark of International Business Machines Corp. in the U.S. and other countries and is used under license. ™ Lexmark is a trademark of Lexmark international, Inc.

Silicon Valley Whole Earth Electronics Apple® Macintosh®

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

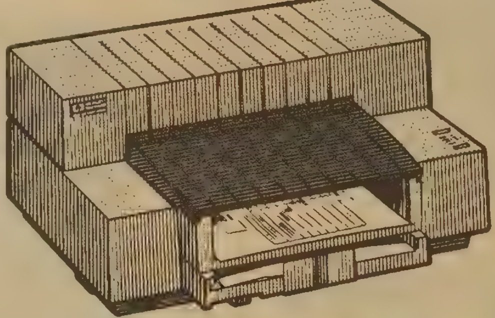
WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm

We'll Match Any HP Price From Any Reseller On Any HP Product!*

HP Deskwriter Printer

HEWLETT PACKARD



Don't settle for less than perfect, professional-looking documents. The Deskwriter prints at a smooth 300 dpi, it's affordable, and it's compatible with AppleTalk® for use with your Apple® Macintosh® personal computer.

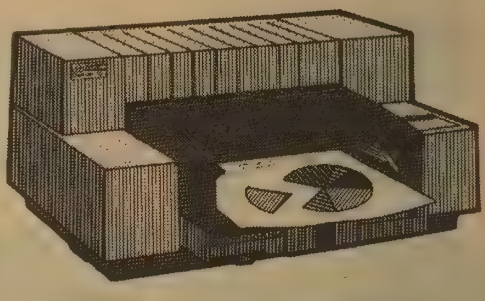
Limited Supply

$50 REBATE
EXTENDED TO 4-30-93

HP DeskWriter C Printer

HEWLETT PACKARD

The HP DeskWriter C adds color capacity to an already famous laser quality black output. It's compatible with Apple® Macintosh® personal computers—and your budget.



$50 REBATE
EXTENDED TO 4-30-93

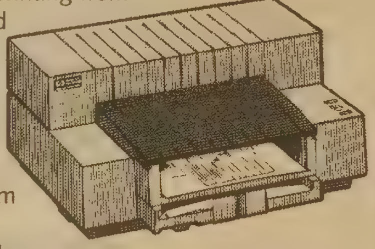
WAREHOUSE PRICING!

*Reseller must have product in stock in order to qualify for price matching.

HP DeskJet 500 Printer

HEWLETT PACKARD

Get laser-sharp printing from all your DOS and Windows applications at a dot-matrix price. This instant classic inkjet printer from HP works with TrueType or font-scaling software to give you perfect type at any size.

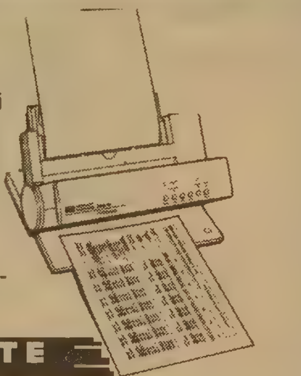


$365.

HP DeskJet Portable Printer

HEWLETT PACKARD

Now you can take famous DeskJet 300 dpi laser-quality output anywhere. Weighs just 4.4 lbs; prints 3 pages per minute (up to 100 pages on one charge). Pictured w/optional cut-sheet feeder.



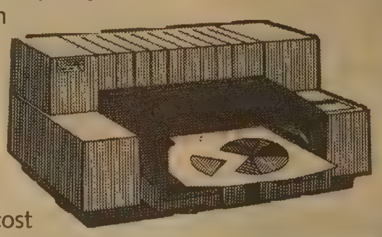
$75 REBATE

** See store for details. Must purchase a Hewlett-Packard Portable Accessory to be eligible. Effective 3-1-93–6-30-93.*

HP DeskJet 500C Printer

HEWLETT PACKARD

Get 300 dpi laser- quality color printing on plain paper and transparencies, for persuasive design and presentation power at a fraction of the cost of a color laser printer. Supports all major software including Windows; 3-year limited warranty.



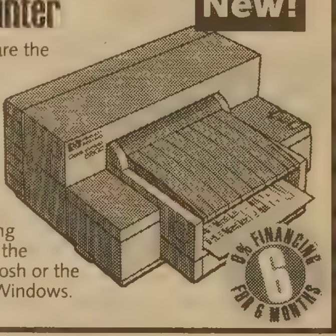
$499.

DeskWriter 550C Printer & DeskJet 550C Printer

HEWLETT PACKARD

New!

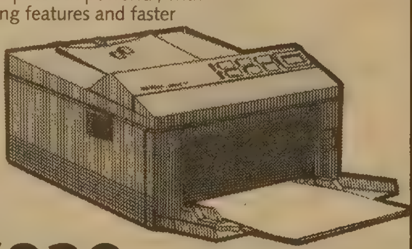
These capable new printers are the perfect answer for small businesses that do occasional presentations and graphics. They'll give you full color output for beautiful pictures or true black output for crisp text, all at a laser-quality 300 dpi—and all without switching ink cartridges. Choose from the DeskWriter 550C for Macintosh or the DeskJet 550C for DOS and Windows.



HP LaserJet IIIP Printer

HEWLETT PACKARD

This LaserJet is a perfect match for small businesses. It's compact but powerful, with great paper-handling features and faster print speed than other printers in its price range. The IIIP also features built-in type scaling and upgradeability to PostScript® for PC and Macintosh.

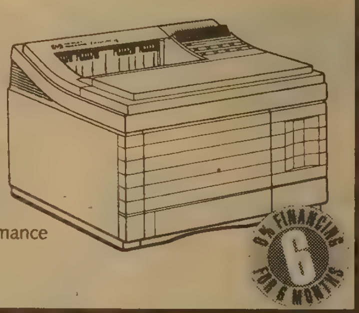


$939.

HP LaserJet 4 Printer

HEWLETT PACKARD

HP takes laser printing to the fourth dimension with this surprisingly affordable 600 dots-per-inch printer. (That's twice the resolution of the LaserJet III.) With 45 fonts, 8 page-per-minute speed, fast output from Windows, and, of course, the great network performance you'd expect from HP.



® IBM is a registered trademark of International Business Machines Corp. in the U.S. and orher countries and is used under license. ™ Lexmark is a trademark of Lexmark international, Inc.

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

The Best Computers at the Best Prices!

$749

DESKTOP SYSTEM

386SX-33 MHz

• 2 MB RAM upgradable to 32 MB • SVGA w/512 K video memory • 3-1/2 & 5-1/4 floppy drives • 101 keyboard • 200 watt power supply • MS DOS 5.0 • Windows 3.1 • McAfee Antivirus • 1-yr depot warranty

Monitor Extra

#CCWSCA0024

89MB HD

$799

MID-TOWER SYSTEM

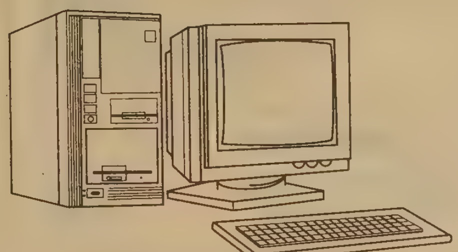
486DX-33 MHz

• 1MB RAM upgradeable to 32 MB • 64K RAM cache upgradeable to 256 K • 1.44 MB floppy drive • IDE Interface, 2FD, 2 HD, 1 parallel, 2 serial, 1 game I/O • 101 keyboard

Monitor Extra

#CCWSCA0102

CALIFORNIA COMPUTERWORKS



$1129

MINI TOWER

COMPLETE SYSTEM

386DX-40 MHz

• 4 MB RAM • 64k RAM cache • SVGA w/512k video memory • 3-1/2" & 5-1/4" floppy drives • 200 watt power supply • 101 keyboard • DOS 5.0 • Windows 3.1 • McAfee Antivirus • 1-year depot warranty

#CCWSCA0012

W/VGA Color Monitor

105 MB HD

WAREHOUSE PRICING!

$1349

MID-TOWER

COMPLETE SYSTEM

486DX-33 MHz

• 4MB RAM • 64K RAM cache • SVGA W/ 512K video memory • 31/2" & 51/4" floppy drives •101 keyboard • 200 watt power supply • MS-DOS 5.0 • Widows 3.1 • McAfee Anti virus • 1yr. depot warranty

#CCWSCA0007

W/VGA Color Monitor

105 MB HD

$1649

MID-TOWER SYSTEM

486DX-50 MHz

• 4 MB RAM • 64k RAM cache • SVGA w/512k video memory• 3-1/2" & 5-1/4" floppy drives • 200 watt power supply • 101 keyboard• DOS 5.0 • Windows 3.1• McAfee Antivirus • 1-year depot warranty

#CCWSCA0002

Monitor Extra

170 MB HD

$1779

MID-TOWER SYSTEM

486DX2-66 MHz

• 4 MB RAM • 64k RAM cache • SVGA w/512k video memory• 3-1/2" & 5-1/4" floppy drives • 200 watt power supply • 101 keyboard• DOS 5.0 • Windows 3.1• McAfee Antivirus • 1-year depot warranty

#CCWSCA0023

Monitor Extra

170 MB HD

® IBM is a registered trademark of International Business Machines Corp. and is used under license. ®PS/I is a registered trademark of International Business Machines Corp., Inc. The Intel Inside logo is a trademark of the Intel Corporation.

TOSHIBA

Toshiba Satellite T1800

- So light, it practically defies gravity (6.8 lbs)
- Stellar i386SX-20 MHz processor
- 64-gray VGA display for out-of-this-world graphics
- Galactic-sized 60 MB hard drive
- Universal 3-1/2" floppy drive
- 2 MB RAM (expandable to 10)

Satellite
T1800
0% FINANCING 6 FOR 6 MONTHS

FREE $300 DOLLAR VALUE

Includes: MicroSoft® Windows 3.1™, MS DOS® 5.0, UltraFont, trackball mouse, instructional video.

$1399.

TOSHIBA

Toshiba Satellite T1850

- 6.8 lbs light
- Brilliant i386SX-25 MHz processor
- 64-gray VGA display
- 80 MB hard drive
- Universal 3-1/2" floppy drive
- 4 MB RAM (expandable to 12) gives Windows a rocket boost

Satellite
T1850
0% FINANCING 6 FOR 6 MONTHS

FREE $300 DOLLAR VALUE

Includes: MicroSoft® Windows 3.1™, MS DOS® 5.0, UltraFont, trackball mouse, instructional video.

$1699.

New! **altima**

Altima 486 Notebook **80 MB HD**

- 486 SX • 25 Mhz • 32 bit
- 4 MB RAM • 8k cace • 10" diagonal CCFT backlit LCD
- 64 level gray scaling
- Simulataneous display on LCD & external monitor
- 2.5–3 hr. battery life
- DOS 5.0 • Windows 3.1 • Case

#ACTICA0061

486 POWER!
0% FINANCING 6 FOR 6 MONTHS

$2449

* Some Toshiba products have limited availability.

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

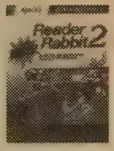
Software for Education, Productivity & Just Plain Fun!

Software for DOS

Berkeley Star Trek: *The Screen Saver*

Prevent monitor burn-in with Star Trek: The Screen Save! Over 15 colorful, sound-packed displays based on Star Trek, including Kirk, Spock, Tribbles and more! **$35.99**

Reader Rabbit 2



Take children on a fantasy railroad trip through Wordville as they learn to read and spell on their own. **$34.95**

Prince of Persia from Broderbund

Animated game of the year, with Arabian Nights theme and endlessly challenging levels. **$25**

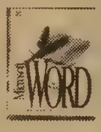
Microsoft Works

This compact, complete integrated package includes a word processor, spreadsheet, modem program, database, and drawing tools. **$135.95**

Microsoft Golf for Windows

A challenging golf simulation from America's #1 software maker. **$38.99**

Microsoft Word for Windows



With its customizable button bar, WYSIWYG display, and drag-and-drop editing, Word is an ideal graphical, intuitive word processor. **$299**

WordPerfect 5.2 dor Windows

The best-selling word processor for the PC, packed with useful features. DOS and Windows versions available.

5.2 competitive upgrade $109.99

Broderbund KidPix

The world's wackiest painting program, with unique brushes, sounds, and rubber stamps. (Note to parents: Please try to pry yourself away and give the kids a chance!) **$33.99**

Microsoft Flight Simulator

Fly a Cessna 182, a Sopwith Camel, Schweitzer Sailplane, or a–gulp–Gates business jet!With realistic scenery, customizable weather and air traffic. **$39.95**

Quicken/Windows	34.95
Pagemaker/Windows	489.95
Great Naval Battles	45.95
The Oregon Trail	25.95
After Dark/Windows	25.95
PGA Tour Golf	39.95
Number Munchers	19.95
Print Shop Deluxe	47.95
WordPerfect Windows	241.95
Kid Pix Companion	23.95

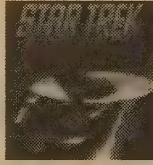
WAREHOUSE PRICING!

Software for the Macintosh

Microsoft Works

Integrates the most-needed office applications into single easy to use package. **$169.95**

Berkeley Star Trek: *The Screen Saver*



Watch your screen come alive with realistic displays from the original Star Trek series. **$34.95**

Microsoft Flight Simulator

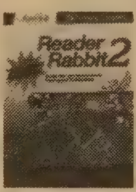
Fly a Cessna 182, a Sopwith Camel, Schweitzer Sailplane, or a–gulp–Gates business jet!With realistic scenery, customizable weather and air traffic. **$41.95**

Claris® FileMaker® Pro

The most powerful, easy to use software for invoicing, mail lists, business reports, and more. Version 2.0 adds50 new features. **$279.95**

The Learning Co.

Reader Rabbit 2



Take children on a fantasy railroad trip through Wordville as they learn to read and spell on their own. **$34.95**

Broderbund Print Shop

Generates greeting cards, business cards, letterhead , and signs - in color! **$36.95**

Broderbund KidPix

Children take instantly to this paint program that turns your Mac into magical art studio. **$35.95**

ClarisWorks™

Perfect for Macintosh owners! An award winning integrated software package. **$99.95 with CPU purchase**

SAM/Norton Bundle

Get two of the best-selling Mac utilities, one for virus prevention and one for disk/file maintenance **$149.95**

T/Maker Faxmania

An imaginative, customizable collection of 80 fax cover sheets for business or fun. **$25.95**

MECC The Oregon Trail

Develop strategic skills with this historically accurate journey through the frontier. **$25.95**

MECC Super Munchers

Learn fascinating facts in scores of subjects including animals, sports, geography, music and more. **$35.95**

Microsoft Word	$289.95
Microsoft Excel	$299.95
Microsoft Office	$499.95
PageMaker	$489.95
KidPix Companion	$23.95
Grandma & Me CD	$34.95
AutoDoubler V2.0	$59.95
More After Dark	$21.95
Prince of Persia	$35.95
Tristan:	
Intermission	$29.95
Play Room	$30.95
Quicken	$41.95
SuperSolvers	
Spellbound	$34.95
Outnumbered	$34.95
Midnight Rescue	$34.95
WordPerfect	$289.95
Kings Quest V	$39.95
Talking Classic Tales	$58.95
Number Munchers	$15.95
Authur's Teacher Trouble CD ROM	$39.95
Capitalist Pig	$34.95
Electronic Arts PGA Tour Golf	$38.95
Electronic Arts PGA Tournament Course	$21.95

Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

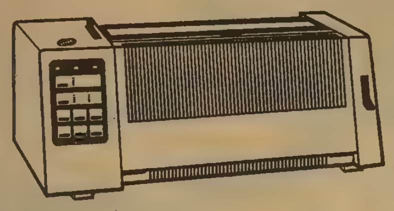
WHOLE EARTH
ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

We'll Match Any Price From Any Reseller On Any Product!*

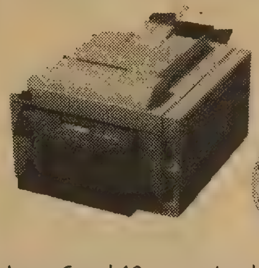
IBM®PPSII 2380



IBM takes impact printing seriously as you and your business. This solid, reliable 9-pin printer is built with a straight paper path so six-part forms and thick paper print right the first time.

$319

IBM®Laser Printers 6 & 10

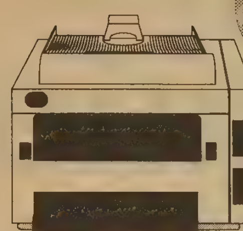


0% FINANCING 6 FOR 6 MONTHS

IBM's Laser 6 and 10 come standard with a 200-sheet tray, and IBM's Print Quality Enhancement; optional envelope and extra paper drawers and an option for PostScript.®

6:$1299 10:$1599

IBM Laser Printer E



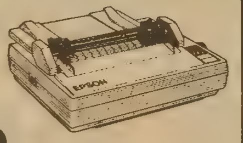
0% FINANCING 6 FOR 6 MONTHS

IBM's most affordable laser printer is built to fit on any desktop, prints 5 ppm, 300 dpi, and is built to meet demanding IBM standards.
Limited Supply

829.

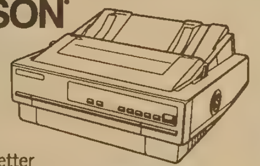
LX-810 EPSON

9 Pin • SmartPark™ paper handling • 200 CPS Super draft • 30 CPS NLQ • High resolution graphics



169.

LQ-570 EPSON



This 24 pin printer utilizes scalable fonts, enhanced graphics, and advanced paper handling to offer better performance.

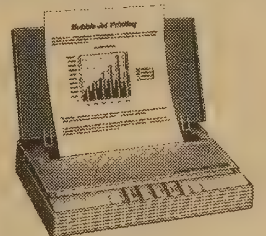
269.

® IBM is a registered trademark of International Business Machines Corp. in the U.S. and orher countries and is used under license. ™ Lexmark is a trademark of Lexmark international, Inc.

WAREHOUSE PRICING!

Canon BJ-10ex Canon

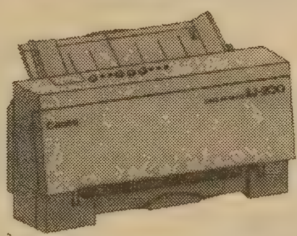
The Canon BJ10ex gives you high-quality document, anywhere, anytime. This portable printer has 360 dpi resolution and battery operation. Optional battery and sheet feed.



$289.

Canon BJ-200 Canon

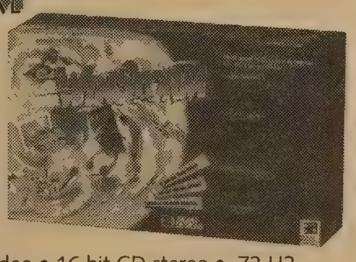
Canon's new Bubble Jet printer incorporates new print technology that produces laser-quality printing at a truly affordable price.



$399.

WINSTORM SIGMA DESIGNS

Windows Multimedia Display Adapter



• 24 bit true color video • 16 bit CD stereo • 72 H2 vertical refresh at 102x768 • SCSI CD-ROM interface • MIDI I/F • Joystick port • 3 multimedia titles.

$399 99

WINSTORM

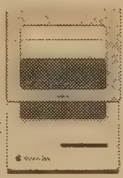
CD-ROM Multimedia Upgrade Kit

All the features of the WinStorm Multimedia Display Adapter Plus • 300 KB internal double speed CD-ROM Drive• 280 MSec access time • Kodak Photo CD access • Comptons multimedia 26 volume set and many more titles.

$999

KENSINGTON.

Classic Glare Filter



Increase your productivity! Keep distracting glare off your screen and out of your eyes. For the Macintosh Classic family.

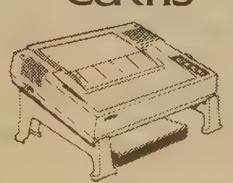
$36 95

Notebook Case TARGUS

Designed for nottebook-style computers, fully padded computer section, reinforced handle & detachable strap.

$39

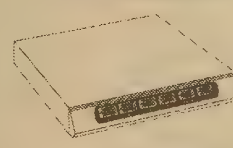
CURTIS



Universal Printer Legs

$13 95

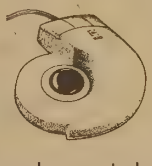
System Connection



Power Control Center SP1000

$15 95

LOGITECH TRACKMAN



Ergonomic, thumb-operated design takes advantage of the natural design of your hand.100% Microsoft® compatible, includes MOUSEWARE® UTILITIES.

KENSINGTON.

Turbo Mouse 4.0

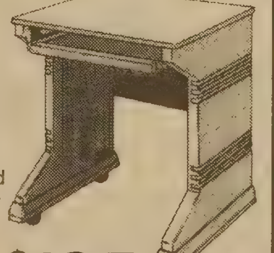
- Comfortably positioned buttons • 2 ADB ports
- Optical Technology
- Limited Lifetime Warranty

MicroComputer Accessories,Inc.

A RUBBERMAID COMPANY

Space-Efficient Workstation

A mobile, compact and self-contained computer desk for the home or office • Glide-out keyboard drawer with built-in wrist rest/storage compartment #1050



$125.

*Reseller must have product in stock in order to qualify for price matching.

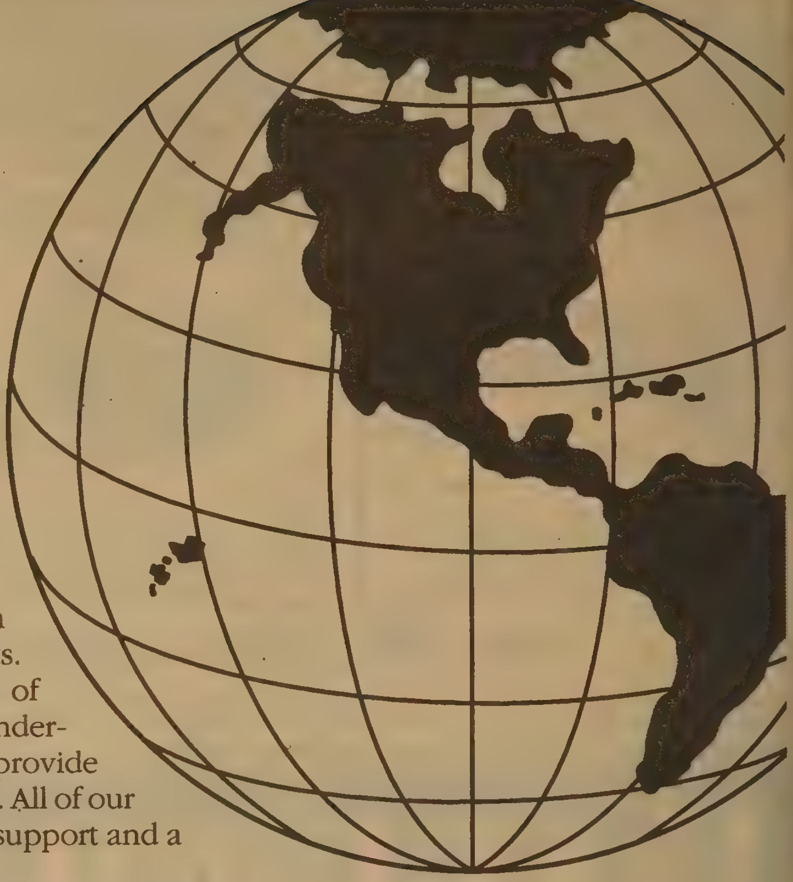
Qualify for Whole Earth Access Financing and pay no interest on any computer purchase over $500. Minimum monthly payments required, and if not paid in full in 6 months, finance charges will accrue from date of purchase. Offer does not apply to consumer electronics products.

WHOLE EARTH ELECTRONICS

SAN JOSE
3530 Stevens Creek Blvd.
(between Winchester & San Tomas)
(408) 554-1500
M-F 10am–9pm
Sat-Sun 10am–6pm

Errors subject to correction.
Prices subject to change without notice.

PanPacific Computer Corporation



We are a diversified supplier of both high-end and low-end PC-AT add-on cards. PanPacific has invested heavily in research engineering and product development. Our commitment to excellence drives our search for products with the highest quality while maintaining the lowest costs. We offer a wide range of products that keep you on the cutting edge of computer technology. Our knowledgeable technical staff understands the needs of computer users and are ready to provide solutions by the most effective and efficient means available. All of our products come complete with unlimited lifetime technical support and a comprehensive one-year parts and labor warranty.

PanPacific knows that our commitment to quality products and service excellence keeps you on the cutting edge of technology.

Mother Board + CPU

486DX2-66/256K	$715	486DX-50/256K	$596
486DX-33/256K	$447	486DLC-33/64K	$295
486SX-25/64K	$200	386DX-40/64K	$160
386-33	$91	386SX-25	$82

Simm Memory

1Mx9,3 CHIPS 70NS	$31	1Mx9,3 CHIPS 60NS	$33
4Mx9,3 CHIPS 70NS	$135	4Mx9,3 CHIPS 60NS	$145

Disk Controller

IDE 2FD/2HD 2S/1P/1G	$19	AT-IO 2S/1P/1G	$15
IDE CACHE VESA LB	$180	Adaptec 1542B SCSI	$245
		UltraStore 34F SCSI	$314

Computer Cases

Mini-Tower 200W	$57	Med-Tower 230W	$76
Full-Tower 250W	$105	Desk-Top 220W	$95

Floppy Drives

Teac 1.2 FD	$55	Teac 1.44 FD	$50

Graphic Cards

ET4000/1M	$85	SVGA CARD/512	$40
S3/1M VESA LB	$180	GENOA 8500VL/1M	$135
Diamond Stealth	CALL	Diamond Viper	CALL
Fahrenheit 1280 VA/VLB 1M Voice Annotation			$315

Monitors

SVGA .28DP Inter	$250	SVGA .28NI	$300
IDEK MF5117 17" NI	$1100	IDEK MF52117 17" NI	$990
MAG MX15F 15" NI	$570	MAG MX17F 17" NI	$1100

LAN Cards

3COM ETHERLINK III 3C 509-TP, 3C509	$1525
3COM TOKENLINK III 16/4 16-BIT ISA 3C619	$700
Novell Netware Lite 1.1	$99
Novell Netware V3.11 5 Users	$1095

Note Book Computers

386SX-25	$1140	486SLC-25	$1525

Each comes with 2M DRAM (4M for 486) 60MB HD, 1.44M, Dos 5.0, Mono VGA, 680 x 480, 2S/1P/1G

Upgrades:

to 4M DRAM	$65	Battery	$70
FAX/MODEM INT	$105	80M Hard Drive	$65
120MB Hard Drive	$210	200MB Hard Drive	$360

All come with 1 year factory warranty.

VESA LOCAL BUS BOARDS

Mother Board

486DX2-66/256K VLB	$730
486DX2-50/256K VLB	$610
486DX-50/256K VLB	$610
486DX-33/256K VLB	$465

VGA Graphic Cards		**Upgrade**
Diamond 24VLB 150M	$180	Add $140
Genoa 8500VL	$135	$105
Fahrenheit 1280/1M 80Mhz	$180	$140
ET4000 VLB/1M	$120	$90

Hard Disk Controller

IDE Cache Vesa	$180	UltraStore 34F SCSI	$315

Computer Systems

486DX2-66/256K	$1530	486DX-50/256K	$1430
486DX-33/256K	$1260	486DLC-33/256K	$1135
386DX-40/256K	$980	386SX-33	$885

ALL SYSTEMS INCLUDE:

•Mother Board & CPU •4M DRAM 70NS (2M for 386SX-33) •Maxtor 130M HD •2Serial/1Parallel/1Game Port •1.2M & 1.44M Floppy Drives •SVGA card 512K •1024 x 768 .28 DP SVGA Monitor •Mini-Tower/200W UL •Enhanced 101 keyboard •3 button mouse

Upgrades:

to 170M HD +$40 to 210M HD +$110 to ET4000/1M SVGA +$40 to Non-Interlaced Monitor +$40 to VESA Local Bus +$30

Note Book Computers

386SX-25/2M DRAM/60M HD $1140 486SLC-25/4M DRAM/60M HD $1525

Upgrades:

to 4M +$65 to 80M HD +$65 to 120M HD +$210 to 200M HD +$360

Accessories:

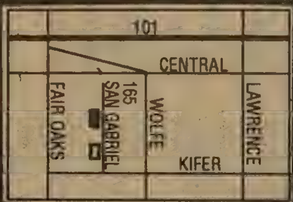
Battery $70 Internal Fax/Modem $105

**Bring your Student ID or Business License and receive a 3% discount*

PanPacific Computer Corporation

165 SAN GABRIEL DR.
SUNNYVALE, CA 94086
TEL: (408) 720-1315
FAX: (408) 720-1102

HOURS
M-F 9-[illegible]
SAT 10-4

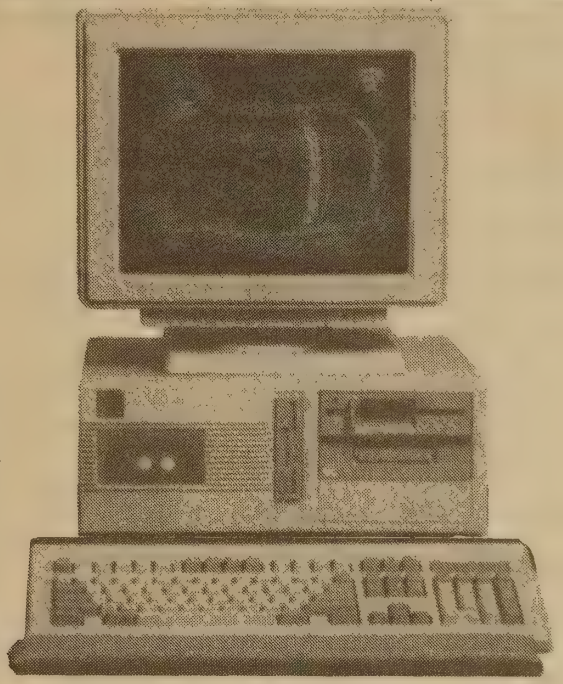


VISA

One year warranty on parts [illegible]
Price/Availability subject to change w/o notice. Shipping and Handling not included/refundable. We assume no responsibility for typos. All prices reflect cash discounts

MULTI-MEDIA SYSTEM

486SX-25 SYSTEM $1648



INCLUDES:

- √ INTEL 25 MHZ 80486SX MICRO-PROCESSOR
- √ 4 MB RAM EXP. TO 32 MB ON THE BOARD
- √ SUPPORT 487SX MATH CO-PROCESSOR
- √ 1.2 MB OR 1.44 MB FLOPPY DRIVE
- √ 120 MB IDE HARD DRIVE
- √ PHILLIPS CD-ROM W/375ms ACCESS TIME
- √ SOUND BLASTER PRO CARD
- √ SET OF EXTERNAL SPEAKERS
- √ 4 CD'S INCLUDING: COMPTON'S MULTI-MEDIA ENCYCLOPEDIA, BRITANNICA'S FAMILY CHOICE, BRITANNICA'S HOME OFFICE SELECT AND SOFTWARE JUKE BOX
- √ 14" SVGA COLOR MONITOR WITH VGA ADAPTER
- √ SIX 16-BIT SLOTS AND ONE 8-BIT EXPANSION SLOT
- √ 101-KEY KEYBOARD
- √ MS DOS 5.0
- √ WINDOWS 3.1 WITH MICROSOFT COMPATIBLE MOUSE
- √ 2 SERIAL, 1 PARALLEL AND 1 GAME PORTS

WESTERN DIGITAL HARD DISKS

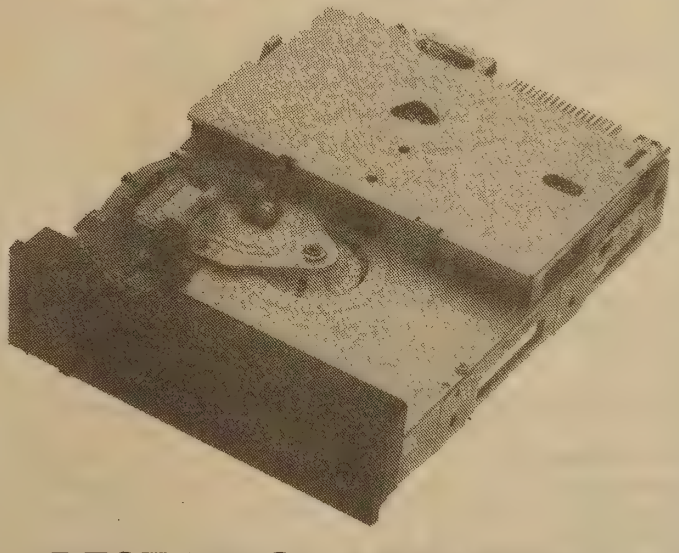
WE CARRY A FULL LINE OF W.D. IDE HARD DISKS

200 MB, 340 MB

CHINON

FLOPPY DRIVES

"THE QUALITY AND PRICES BEAT TEAC!"



★★BEST PRICE ANYWHERE★★

MICRO DISTRIBUTION CENTER

48879 KATO RD., FREMONT, CA 94539 **(510) 657-8079 FAX (510) 657-9511**
15523 BROADWAY, CENTER STREET, GARDENIA, CA 90248 **(310) 515-0155**

AT, XT is a registered trademark of IBM Inc.

ASA COMPUTERS, INC

This is a sample chart to help you configure systems.

[408] 496-6853 Also check later in this Ad for the store closest to you.

Look at our other pages for more peripherals.

SYSTEM CACHE 64K on all DX MBs $25 more for 256K	Basic System	Basic System +40MB ide 12" mono Mon MGP Card	Basic System +40MB ide 13" vga Color VGA Card	Basic System +80MB ide 14" SVGA .39 SVGA 512 Card Total 4MB	Basic System +120MB ide 14" SVGA .28 SVGA 1MB Card Total 4MB +1.2 Floppy	Basic System +200MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy	Basic System +340MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy	Basic System +340MB ide 14" NI SVGA .28 SVGA 1MB Card Total 8MB +1.2 Floppy SONY CDROM *
486DX2-66 VLB	$879					$1,756	$1,918	$2,118
486DX-50 VLB	$771				$1,408	$1,648	$1,810	$2,010
486DX-33 VLB	$636				$1,273	$1,513	$1,675	$1,875
486DX2-66 EISA	$940			$1,446	$1,578	$1,818	$1,980	$2,180
486DX-50 EISA	$832			$1,338	$1,470	$1,710	$1,872	$2,072
486DX-33 EISA	$697			$1,203	$1,335	$1,575	$1,737	$1,937
486DX2-66 ISA	$832		$1,109	$1,338	$1,470	$1,710	$1,872	$2,072
486DX-50 ISA	$724		$1,001	$1,230	$1,362	$1,602	$1,764	$1,964
486DX-33 ISA	$589	$790	$866	$1,095	$1,227	$1,467	$1,629	$1,829
486SX-25 ISA	$406	$606	$682	$911	$1,043	$1,283	$1,445	$1,645
386DX-40 ISA	$319	$520	$596	$825	$957	$1,197	$1,359	
386SX-33 ISA	$260	$460	$536	$765	$898	$1,137		
386SX-25 ISA	$249	$449	$525	$754	$887			

This Matrix is frequently updated, so give us a call and we'll fax you the latest version VAR's and reseller's call for our reseller matrix.

All Basic Configurations [systems] include Motherboard, 1MB RAM, Mini Tower Case, IDE [1:1] Controller, 2SPG, 1.4 Floppy, 101 Keyboard

All ASA build systems have a in-house system warranty of three years. Parts Warranty is 1 year. * While quantities last

TOP OF THE LINE LOCAL BUS WORKSTATIONS

BUY EITHER #1 OR #2 LEADERS OF THE YEAR

SPEC	DIAMOND	ATI
Comparision	50 Million WM	29 Million WM
Motherboard	DIAMOND FASTBUS	MICRONICS
Power	486-66 256K CACHE	Same
BIOS	AMI	PHOENIX
RAM	8MB ESIMM-70	Same
	exp to 128MB	Same
Exp. Slots	2 VESA, 5 ISA	2 VESA, 6 ISA
Floppy Drives	1.2, 1.44 Teac Drives	Same
HFC	On-Brd 16 bit dsbld	On-Board 32 bit
	DTC 8.3mb/sec vlb	NA
Case	Med Tower 230 PS	Same
Keyboard	Keytronics 101 enh	Same
Video Card	DIAMOND-VIPER	ATI-ULTRA PRO
	2MB VRAM, VLB	Same
	1280X1024X256Clr	Same
24bit Proc	WEITEK P9000	MACH32
Price	**$1,889**	**$1,889**

Our Recommendation is #1

Per your needs, Choose HDD, Monitor, and Multi Media

Installation Services *	
Memory Upgrade	$9.99
Any Hard Drive	$24.99
Any Tape Drive	$24.99
CD-ROM Drive	$29.99
Full Multi Media	$39.99
Novell LAN Software installation [at our plant] *	
Server Installation	$199.99
Work station - Novell bootable	$39.99
Print Server preparation	$49.99
Server each application	$99.99

Includes configuration of printers

* Parts should be purchased from ASA

COUPON REQUIRED FOR PURCHASE
RAIN CHECKS AVAILABLE

TEXEL Drive
DM 3024 INT CDROM
300KB/sec 265msec
64K Buffer.
.............$349

SONY CDROM
Fully Installed in your
PC. Drive, cbl, Drivers.
Limited Qty. 30 day wrnty
.............$199

TRAKKER
Parallel Port Tape
Backup by Colorado
250MB..TJ-20
.............$394

CD RENTAL
One CD-ROM
for one week only
over 200 titles....
..................$3

FOTOMAN
Logitech Fotoman
Digital Camera for
Your Computer....
.............$445

US ROBOTICS
14400 Modem w/ Fax
External or Internal
V.32BIS,V.42/MNP2-4
.............$289

SVGA Monitor
.39 Dot Pitch
1024x768
Autoswitch 110/240
.............$195

SVGA Monitor
.28 Dot Pitch 1024x768
Hitachi/Panasonic
Tube. 110/240V
.............$229

WD 340 IDE
Western Digital IDE
340MB HD, 12ms,
2 year warranty
.............$429

Magnavox 20"
1280 NI, .31 Dot Pitch
Sampo 20"
1280 NI, .31 Dot Pitch
.......$1175/970

MAG MX17F "
1280 NI, .31, Microp MPRII
Sampo 17"
1280 NI, .31 Dot Pitch
.......$975/675

NEC 4FG
1024 NI, .28, Microp MPRII
MAG MX15F
1280 NI, .28 Dot Pitch
.......$705/540

COUPON COUPON COUPON

No Returns....Valid upto 03/20/93...Stock Limited......Cash Only[no checks]
Available at Participating ASA Stores only.........Walk-in Service only...
One Coupon per Customer Only...............Not valid with any other Promotion
Families of ASA Employees are not eligible..................no demos.

ASA COMPUTERS

On-Site Service

On-site service available
San Francisco Bay Area
Continental USA
Corporations please enquire when ordering full systems.

Bulletin Board

Field technician available to set-up Telephone Modem based Bulletin Boards for small - large companies

Call us for an appointment

LOCAL BUS

MOTHERBOARDS

ASA 486-33/50/60 w/256k	**486/635/748**
ORCHID 486-33/50-256	630/840
DiamondFastbus 33/50/66-256	**660/799/924**
Micronix 486-33/50/66	**715/853/962**

CONTROLLERS

DTC 2270 8.3MB/sec IDE / IO	**81**
ASA IDE/IO	**59**
ORCHID IDE/IO vlb	68
PROMISE IDE/IO Cach15.6mb	198
UltraStor SCSI 34F, 32k Card	269
UltraStor SCSI 34F, 32k Kit	**329**

GRAPHIC ADAPTERS

wm = winmark ver2.5

DIAMOND

Stealth 24vlb S3-805	**179**
Stealth pro 1/2MB vram,36wm	260/380
Viper 1/2MB,9000,50wm	334/422

ORCHID

Farenheit S3-805, 1/2MB	165/??
Same with voice annotation	219/??
Celsius 9000	coming soon

GENOA

ET4000	149
8500VL, cirrus logic	**136**
8700VL, S3-805	180
ATI Ultra Pro, 2MB, 26wm	460
ASA Cirrus logic 1MB	**115**

MONITORS

MONO

Mono 12"	$73
Mono 14"	$91
Mono 9" VGA	$135
Mono 14" SVGA 1024 x 768	$109

VGA

VGA 13" .28 Color......ref	**$150**
VGA 14" .41 Color......ref	**$159**
VGA 14" 640 x 480, .51 / .41	$168 / 197

SVGA

SVGA 14" 1024 x 768, .28 dpi	**$246**
CTX Autoswitch 1024, .28 dpi	$255
Black SVGA 1024,.28 dpi	**$279**
Viewsonic V6E 14", 1024 .28 NI	$343
Sony 1304S 14" .25 dpi Low Rad NI	$545
CTX 14" 1024 .28dpi Hitachi NI	**$299**
Mitac 1564S 15" .28 dpi 1280 x 1024	**$399**
Samsung 15" NI Flat .28dpi 72 Hz ref	$449
Mitac 17" .31dpi 1024 72Hz NI	**$599**
Samsung7487 17" .26dpi 1280NI Microp	$899
Maganavox 20" 1280 x NI	**$1357**

Raid Disk Arrays

Support of RAID levels 0,1, and 5;
5 Channel Multi-thread I/O;Hot swap of drive;Novell, SCO UNIX, DOS.....
Call **Paul** at [408] 496-6186

Disk Pack Drives

Bootable, Portable, Mechanically protected Bases and Disk Packs Millitary/Government/Corporate ....data security usage
Call Paul at [408] 496-6186

MOTHERBOARDS

286-12/20	**49/59**
386SX-16/25/33	**82/89/102**
386DX-40w/64kCache	**157**
486SX25	**246**
486DLC-33 w/ Mathco	**285**
486DLC-40 w/ mathco	**365**
ISA 486DX-33 w/64k	**433**
ISA 486DX-33 w/256k	**445**
ISA 486DX-50 w/256k	**594**
ISA 486DX2-66 w/256k	**707**
EISA 486DX-33 w/256k	**559**
EISA 486DX-50 w/256k	**709**
EISA 486DX2-66 w/256	**829**
VESA 486DX-33 w/256	**486**
VESA 486DX-50 w/256k	**635**
VESA 486DX2-66 w/256	**748**

Call for MB pricing w/o CPU.

CASES/PS

Baby Desk/Tower w/ PS	**$54**
Baby Desk PS Del	**$69**
Medium Tower/Full AT w/ P	**$79/69**
Full Tower/Super T. w/PS	**$99/155**
Rack Mount W/PS	**$299**
File Server w/ 400W PS.3 Fans... 12 F/HDD, black/beige	**$494**

BLACK

Baby Desk/Tower w/PS	**$88**
Medium w/PS	**$127**
Full Tower w /PS	**$138**

External HDD Cases

1FH/2HH...65W	**$110**
2FH/3HH...65W	**$137**
SCSI Cables Int/Ext	**$9/10**

Power Supplies

XT Power Supply	**$34**
PC Power XT Turbo Cool 230	**$80**
220 AT	**$46**
PS2 200W	**$40**
PS2 300 W	**$95**
Full Tower 230W	**$58**
Full Tower 300/400	**$80/154**

KEYBOARDS, MICE

101 Enhanced	$25
MaxiSwitch / M-Click	$31 / 36
KeyTronic	$39
BLACK 101	$39
SEJIN J-Mouse K/B w/mouse under 'J' Key	**$89**

Also Fullline - European/ArabicKBs

S-Mouse/TBall	$10/25
LogiTech First Mouse Serial	$39
LogiTech Ser/Par New	$64
Microsoft Original	$79
BLACK SERIAL	**$22**

Fault-Tolerant Servers

w/ Disk Mirroring, Disk Duplexing, Synchronous Disk Support.
Novell, SCO Unix, DOS, OS/2....
Call **Paul** at [408] 496-6186

CD-ROM Rental

$5.00 per week

App. 80 titles in stock -- building up to 500 titles.**[games, education, DBs, languages]**

Deposit Required.

CONTROLLERS

IDE 2FD/2HD	**$12**
IDE 4FD/2HD	**$33**
IDE w/ 2SPG..gen/WD	$16/26
IDE Caching UltraStor	**$199**
IDE EISA DTC	$135
MFM ST21M	$37
RLL 4FD/2HD	$69

SCSI

DTC	$99
Future Domain Comp	**$52**
ADAP 1522B/Kit	**$90/140**
ADAP 1542B/Kit	**$207/249**
ADAP 1542C/Kit	**$205/260**
CorelSCSI SW for	add $85
ADAP 1742 EISA	**$429**
DTC EISA Caching	$485
MYLEX EISA Caching	**$565**
DPT Smart Cache+EISA	$540
DPT +Caching Module	$385
DPT 4MB Mem Module	$454

ESDI

DTC	**$119**
Maple 64K new version	**$130**
Ultra 12F 32K	**$164**
Ultra. 22F Caching EISA	$449
XT FDC360/1.2	**$13/24**
XT HDC	$45

ADAPTERS

MGP	$12
Color Card	$23

VGA/SVGA

VGA 256k	$25
VGA 512K..trident	$38
Trident 1MB	$55
Tseng 1MB	$75
Orchid II, IIs	$134
Orchid IIs w/ 32K Color	$159
Orchid Fahrenheit.w/sys.VRAM	$209
Genoa 1MB 32K Color	**$119**
V7 VRAM II 1MB	$285
Diamond Stealth	**$189**
Mylex GLI	$249
ATI Ultra Grpx 1MB	**$259**

TERMS

2% off on items that are not in stock & you are willing to wait for them. 1% more off if item is not in by promised time [or shipped freight free].

COD, FOB Santa Clara.
Besides Purchase Orders [on approval of credit terms], Credit Cards, Cheques, we accept Cash too.

Warranty – Parts – one year. Labor - - 3 years on systems assembly only. Not responsible for typos. Prices are subject to change.

International Orders via Fax **408-988-0359 24 hours. [VISA/ MC Wire transfer]**

ASA COMPUTERS [408] 496-6853 F: [408] 988-0359

DRIVES

Floppy Drives

YE Data 1.2 / 1.44	$50 / $45
Teac 1.2 / 1.44	$54 / $48
Teac Dual Floppy 1.2 + 1.44 MB	$139
Teac 2.88 MB	$89
Teac 2.88 MB w/ Frame & Cont	$169

IDE

ST157A 40MB 28 msec	$119
CON 40MB 25 msec	$134
ST 40MB 19 msec	$139
WD 80MB 16 msec	$179
CON 80MB 19 msec	$182
CON 120MB 19 msec	$225
MXT 130MB 15 msec	$224
CON 170MB 17 msec	$249
CON 212MB 12 msec	$319
MXT 213MB 15 msec	$296
MXT 245MB 15 msec	$319
WD 340MB 12 msec	$459
MXT 340MB 15 msec	$539
FUJ 330MB 12 msec 5yr	$589
FUJ 540MB 12 msec 5yr	$869
CON 540MB 12 msec	$854
MXT 540MB 12 msec	$879

MFM

ST80......full h	$259

ESDI

MXT 338 / 670MB	$995 / 1190

SCSI - 3.5"

MXT 130MB 15 msec	$234
MXT 213MB 15 msec	$315
CON 212MB 12 msec	$325
MXT 340MB 15 msec	$575
FUJ 425MB 11 msec 5yr	$815
FUJ 520MB 11 msec 5 yr	$859
CON 540MB 12 msec	$855
MXT 535MB 12 msec	$925
MXT 540MB 8 msec Magix	**$1049**
TOSH 877MB 12.5 msec	**$890**
MXT 1.2GB 8 msec Magix	**$1539**
ST 1.2GB 10 msec	$1465
FUJ 1.2GB 10 msec	$1499
TOSH 1.2GB 12 msec	**$1249**

SCSI - 5.25"

ST 670MB 14 msec	$1029
ST 670MB 11 msec	$1329
MXT 1.2GB 13 msec Panther	**$1199**
ST 1.2GB 14 msec	$1225
FUJ 1.2GB 14 msec	$1259
MXT 1.7GB 13 msec Panther	**$1469**
ST 1.7GB 14 msec	$1621
ST 1.7GB 11 msec	$1889
ST 2.1GB 11 msec	**$1899**
FUJ 2.0GB 11 msec	$1995
ST 2.4GB 11 msec	$2539
ST 3.4GB 11 msec	$3995

EXTERNAL HARD DRIVE SUB-SYSTEMS

We Integrate External Hard Drive Sub-Systems

To configure your Hard Drive Sub-System select a set of HDDs and an external case that would suit your needs......................

Integration Charges..................$19.99 / Drive
(External and Internal Cables are be added)

TAPE BACKUP

(<500MB TAPE-BACKUPs)

Colorado 120 / 250MB	$158 / 205
...Colorado KE-10 External kit with card	$105
....Colorado External port card	$37
...FC-10 high perf card	$85
Summit Express 305MB 10Mb/sec	$264
Colorado Trakker 120 / 250MB	$344 / 415
Archive Viper 215S / 525S	$477 / 729

............(6MB/SEC, SCSI INTERFACE)...........

(>500MB for PC / SERVER)

Colorado 700MB	689
.......FC-15 high perf card	$181
Colorado 2.4 / 4.0 GB Qic 5.25	$969 / 1499
HP 2GB DAT 4mm Int/Ext	$1140 / 1255
HP 5GB DAT 4mm Int/Ext	$1320/1475
MAYNARD 2GB 4mm DAT Int/Ext	$1890/ 2060
MOUNT FS1200 4mm DAT Int/Ext	$1840/2133
EXABYTE 2GB 8mm DAT Int/Ext	$1485 / 1815

.....(above drives require special contr & soft drivers)

TAPE BACKUP DRIVERS

NOVASTOR

Novaback for DOS	$89
Novaback for 0S/2	$89
Novanet Multiuser NLM	$439
SYTOS for DOS/NOVELL, GEN	$185
ARCserve Solo	$185

STORAGE MEDIA

Floppy 1.44 Bulk	$.79
Floppy 1.2 Bulk	$.49
Tape DC2000XL	$18
Tape DC2120 250MB	$19
DT-2400 2.4GB .25" Cartridge	$54
DT-4000 4.0 GB .25" Cartridge	$57
DAT 4mm 60/90 mtr	$19/29
DAT 8mm 54/112 mtr	$18/24
Syquest 44MB Cart	$66
Syquest 88MB Cart	$97
Bernoulli 44MB 3Pk	$315
Bernoulli 90MN 3Pk	$415
Magneto-Optical 650MB Cartridge	$159

OPTICAL DRIVES

Maxoptix ext 1GB	$2725
Panasonic int 1GB	$2489

OPTICAL HARD DRIVE

650 MB, 19 msec Access Time, Read/ Write many times; Magneto/Optical Media; 3600 RPM;...

External Drive by Pinacle	$2995
Magneto/Optical Cart 650 MB	$159

SUPER hard DRIVES

Seagate Barracuda 3.5" HH (8 msec avg. seek, 4.17 msec lat., 7200 RPM)
Barracuda 1.7 / 2.5 GB..........July / August

FLASH Card Hard DRIVE

1.8" / 2.5"; .28: High; less than 1.5 msec sleep; 5 - 40 MB Capacities.......... ....shipping in March.

SOFTWARE

Utilities

Norton Anti Virus2.1 / Utilities6.01	$89/112
PC Tools 7.1 w/Antivirus	$99
MS Works	$95
After Dark Startrek	$39
Carbon Copy Plus 6.1	$149
Corel SCSI Software	$79

Databases / Spreadsheets

DBASE IV 1.1	$469
FOXPRO 2.0	$490
QuattroPro/Lotus 1-2-3	$299 / 379
MS Excel for Win	$301

Desktop Publishing/CAD

MS Word 2.0 for windows	$298
Harvard Graphics for Win	$335
PageMaker for Win	$475
Word Perfect 5.1	$256
Corel Draw 2.01	$397
Adobe type manager	$65
Design CAD 3,1 3D	$218
MS Office for Windows V4.0	$479

Operating Systems

SCO UNIX DEV sys3.2.4	$849
SCO UNIX GT m user 3.2.4	$849
DOS 3 / 4 / 5 w/sys	$36 / 42 / 52
DOS 6..DR	$69
Windows 3.0 / 3.1 upg w/sys	$49
Windows 3.1 w/mse w/sys	$64

BUSINESS

DacEasy Network Accounting 4.3	$199
DacEasy Payroll 4.3	$99
ACCPAC BPI	**CALL**
ACCPAC PLUS	**CALL**

CRYSTAL SERVICE - ACCPAC SUPPLIMENTS

Jian BizPlan Builder	$89
Jian Employee Manual Builder	$89
Jian Living Trust Builder	$89

[Sales and Support on ACCPAC]

CD SOFTWARE
OVER 200 TITLES IN STOCK

NOTEBOOK DRIVES

80MB 2.5" IDE	$190
120MB 2.5" IDE	$276
1.2MB External Floppy Drive	$175

PARALLEL PORT HARD DRIVE

Parallel Port External Hard Drive - Best suited for Laptops & Notebooks

Fast SCSI Based Sub-System. Add Price for appropriate SCSI Hard Drive + Kit Price at...............$295

REMOVABLE HDD

Syquest 44MB Dr	$290
w/ Ext Case, Cbls, Cart., Cont	$485
Syquest 88MB Dr	$359
Bernoulli 44 Insider	$907
Bernoulli 90 Insider	$840

Cartridges see storage media

IDE: Upto 1GB removable kits	**$39**
SCSI: Upto 1GB RemKits	**$138**

MICRO MARKETPLACE

ENGINEERING CAD / CAM

Monitors

Hitachi

CM1584MV 15"FST.28,1280NI, MPRII	$499
CM1785MV 17' FST,.28.1280NI,MPRII	$940
CM2085 20" 1280 Anti Glare	$1275
CM2087 20" 1280 72Hz Microp	$1675
CM2187 21" FST 1600x1280 Microp	$2145
ACCUVUE PS-21FST,.28.1600x1280,Micr	$2220

Toshiba

P21CR 21", .31, 1280NI, MPRII	**$1925**

Sony

CPD1304S 14", *MPRII*, 70Hz	**$540**
CPD1604S 17"..Orig/OEM	**$985 / 905**
CPD 1430 14"	$595
GDM2036S 20",.1280NI, MPRII	$1985

Sampo

Sampo 17" NI 1280 x 1068	**$699**
Sampo 20" NI 1280 x 1068	**$1040**

Nanao

F340iW 15",.28, 72HZ, MPRII, Micrp	$689
F550I 17",FST, 1280, .28, *MPRII*	$1085
T560I 17", Trin, 1280, .26, *MPRII*	$1675
T660I 20" Trin, 1280, 72Hz, MPRII, Micrp	$2440
F750i 21", .31, 1280, 72HZ, Micrp	$1999

Magnavox

20CM64 20", 1280NI, .31	$1345

NEC

3FGX 15", .25	$629
4FG 15",.25, Microp	**$720**
5FG 17",.26, Microp	$1339
6FG 21", .26, Microp	$2399

MAG

MX17F,17' .26, 1280NI, Microp	$1060
MX15F 15' .28, 1280NI, Micrp	$575

PHILIPS

1764DC 17' .26,FST,1280NI,Micrp,MPRII	$1050
1762DT 17',TRIN,.25,1280NI,Micrp,MPRII	$1099
2082DC 20',TRIN, .30,1280,72HZ	$2140
2182DC 21' .28,1600X1280,Micrp,MPRII	$2575

GRAPHIC ADAPTERS

NUMBER NINE - #9GXI

L23 WIND/ACAD,T34020,1280,16C	$929
L25F,40MHZ,WIN/ ACAD,,1280,256C	$1195
L29 T34020,1024X768X16.7M COLOR	$1315

NUMBER NINE - #9 GXE

L11 S3928, 2MB VRAM	$539
L12 WITH 3MB VRAM	$685

HERCULES GRAPHITE	$289
MYLEX GXE020B Ti34020	$1045

DIAMOND COMPUTERS

Speedstar 24X	**$159**
STEALTH 1MB	**$189**

GENOA

7900 16m Color (24 bit color)	**$129**
7860 1MB Hi-Color	**$132**
8860 S3 Chip Hi-color	**$189**

The bold items are always in stock Sorry, we don't have all Monitors, Plotters, Digitizers, & Scanners on Display. Please treat these as Catalog orders.

ASA COMPUTERS

NOTEBOOKS

TWINHEAD SLIMNOTE

386 SXL-25, 2MB, 60MB / 80MB	$1294 / $1339
486 SLC-33, 2MB, 80MB/130MB	$1650 / $1794

LEADING EDGE

386 SXL-25, 4MB, 80MB	$1431
386 SL-25, 2MB, 80MB, COLOR	**$1980**

CHAPLET

386 SX25, 4MB, 80MB/120MB	$1199 / $1399
486 SLC, 2MB, 80MB/120MB	**$1475 / $1599**

(........the only notebook w/SCSI port........)

Call for high end notebooks and notebook accessories.......................

PORTABLE POWER

More Power than any Compac, Toshiba or Doulch ....

Powerful Portable PC / Laptop under 15 Lbs; Upto 486DX2-66 CPU; 32 MB RAM; 256K Cache;1.2 GB Hard Disk Drive; Black / White VGA LCDPanel; SCSI or One 3/4 AT (ISA) slot Expandability; **Multiple Platform Compatibility - OS/2, Win 3.1, Windows NT**..........................

XPression Color Overhead Projection System; w / Color Active Matrix LCD Panel based; ....call Paul at (408) 496-6186

PLOTTERS DIGITIZERS SCANNERS

PLOTTERS

HOUSTON INSTRUMENTS

Im Maker 1117,A/B,8 Pen, HPGL	$632
DMP-161 A-D, 8 Pen, HP-GL/2	$2625
DMP-162 A-E, 8 Pen, HP-GL/2	$3439
DMP-162R A-E, 8 Pen, Roll Med	$3975
V50(INKJET A-C SIZE).....NEW	$1410

DIGITIZERS

SUMMAGRAPHICS

III 12x12 w/16btn, or 4bt & Pen	$309
III 12x18 w/16btn or 4bt & Pen	$549

KURTA

XLP 12x12 w/4btn & Pen	$249
XLP 12x18 w/16btn or 4btn, Pen	$529
IS/ONE 12x12 4btn / 12btn / Pen	$329
IS/ONE 12x17 4btn / 12btn / Pen	$530

(IS/ONE also available w/Cordless 4btn or Pen)

XLC 24 X 36	$1260
XLC 18 X 24	$1070

SCANNERS

LOGITECH (HAND-HELD)

SCANMAN-COLOR	$505
SCANMAN 256 / CatchWord PRO	$220/260
SCANMAN 32 / CatchWord PRO	$130/155

MICROTEK

SCANMAKER II 1200dpi, MAX	$851
SCANMAKER IIXE 1200dpi, MAX	$1140
SCANMAKER 1850 1850 dpi MAX	$1360
MS-II OCR SCANNER	$669
ADF-600 Automatic Sheet Feeder	$480
SCANMAKER 45t for Transparencies	NEW

RELISYS

Cold Tube Design - No Heating Time

RequiredCOLDSCAN 800dpi	$1159
COLDSCAN 600 dpi	$979
COLDSCAN 600 dpi Grayscale	$699

(All Include Picture Pub LE & WordScan OCR)

50 Page Automatic Document Feeder	$394

ARTISCAN

6000C 600dp, with colorshop software	$770
8000C 800dpi, with color shop software	$1040
1200C 1200 dpi, with color shop software	$1490
..Picture Pub LE or WordScan OCR	$64
..Slide Scan Kit for 6000C/8000C	$550
..Slide Scan Kit for 1200c	$650

NETWORKING

ADAPTERS / KITS

NOVELL ORIGINAL

NE2000 16bit ThinThick	$141

ADVANCED LAN NETWORK

NE2000 Comp 16bit Thin/Thick	$64
.........5 Pack	$295
NE1000 Comp 8bit Thin/Thick	$59
Arcnet 8/16 bit	$59 / 69

WESTERN DIGITAL[SMC]

16 bit Ethernet Thin/Thick..bulk	$139

3COM

3C503 16 bit Coax/10BaseT	$162/174
3C507 16 bit Coax/10BaseT	$274/294
D-LINK 16bit 10BaseT	$89
MYLEX LNE EISA	**$327**

ARTISOFT

AE-2/3 Lantastic Kit	$445/525
AE-2/3 Lant Kit for Win	$499/575
AE-2/3 16 bitAdapter	$195/231
Z-2 Lite Kit 2 Stations	$94

TOKEN - RING ADAPTERS

K1604 "TROPIC" Chip 16/4 mbps	$399
K1601 "TI" Chip 16/4 mbps	$329

POCKET LAN ADAPTERS

AD. LAN CN50ET 10BaseT or Coax	$185

HUBS

D-LINK 12 Port 10BaseT	$495
D-LINK 4 Port 10BaseT Int	$265
D-LINK DE-1500 w/ SNMP	$875
Ad LAN 8 Port 10BaseT	$295
K1032 32 Port w/SNMP	$2545

INTELLIPORTS - COMPUTONE

Advantage 8 ATV8DB25	$477
Intelliport AT8DB25	$625
Intelliport AT16DB25	$999

UPS's

AMERICAN POWER

APC-BK250, 7min, 386SX, WS	$101
APC-BK400, 10min, 286, 386 WS	$163
APC-BK450, 10min, 386, 486 FS	$195
APC-BK600, 15min, 386, 486 FS	$265
APC-BK900, 15min Multiple FSs	$379
APC-BK1250, 15min Multiple FS	$506

SMART-UPS (ON-LINE/AUTO BACKUP)

APC-400, 10min, 286, 386 FS / WS	$304
APC-600LS, 15min, 386, 486 FS / WS	$394
APC-900, 15min, CAD/CAM WS/FS	$569
APC-1250, 15min, Multiple FSs	$747
APC-2000, 20 min, Mini Computers	$1170

Note: International version is also available........

SERENA 5.25" 300VA UPS mounts inside PC

INTERFACE-KITS /SMART MONITORING.

PowerChute SCO Xenix	$84
PowerChute Plus for Unix / Xenix	$115
PowerChute Plus for Novell	$72
UPS Monitoring Board - Novell	$69

NOVELL NETWARE

Ver 2.2 5/10 User	$470 / 1050
Ver 3.11 5/10 User	$580 / 1300
Ver 3.11 20/50 User	$1710 / 2620
Ver 3.11 100/250 User	$3553 / 6765
NOVELL-LITE	$69

WINDOWS FOR WORKGROUP

..ADD-ON STARTER KIT	375
..ADD-ON USER KIT	$189
..ONLY SOFTWARE	$68

(NOVELL PREMIUM NETWARE - FREE NEXT UPGRADE - Available)

NETWORK HARDWARE

ETHERNET RG58 CABLES

Readymade w/Connectors 10'/25'/50'	$4/8/12
Bulk 1000' SPOOL	$89
Terminators / All Conn	$1.50ea.

MULTI MEDIA

SONY CD-ROM 535 Int Kit	$290
SONY CD-ROM 541 Int SCSI	$420
NEC CDR-84/74 280ms Access, ...300KB/sec, Int/Ext	$554 / 618
TOSHIBA txm3401B/E, int/ext	459 / 535
...200ms access , 330 kb/sec	
Texel DM 3024/5024 265ms Access ....300 KB/sec Int/Ext	$375 / 470
(Contr.crd & Multimedia options	pl.call)

CD-ROMs

7 Pak.. [Animals,Grol Ency 5.0, World & Us3.0, Bruce Li, Games II]	$110

Over 200 titles in stock

CD RENTALS (for 1 week)	$5.00

SOUND BOARDS & MPC KITS

MEDIA VISION

Thunder Lt, 24 bit Grph,8 bit Snd	$229
Pro Audio Spectrum 16	$185
Multi-Media Upgrade Kit Plus Int	$715
..Upg Kit Pro16..Int/Ext	$925 / 1019
.....Multi-Media Video Adapter	$834

CREATIVE LABS

Multi-Med Upg Kit Int/Ext	$505 / 589
Video Blaster	$329
Software Dev. Kit	$99
SoundBlaster 16ASP...[new version]	**$219**
NEC MULTIMEDIA GALLARY	**$839**

TURTLE BEACH

Prof Sound Card	$509
Sound Editing Software	$85
Turn your Monitor into a TV kit	**$249**

COMPUTER VIDEO

AITECH

Pro Color 16 bit32k	$525
Pro VGATV/Plus w/ soft	$439 / 619
Pro PC Video Full Motion	$449

LOGITECH

Fotoman Digital Camera for PC	$475

COMMUNICATIONS

MODEMS / FAXES

2400 Modem Int. w/MNP5 software	$32
2400 Modem External	$69
96/24 FAX/Mod DOS/Windows Internal	$57

ADTECH - Made in USA

96/24 Fax/Modem MNP5, V.42bis hardware	**$79**
14.4/96 Modem/Fax V.32 & V.42 bis	$179
14.4/14.4 Modem/Fax V.32bis & V.42bis	**$179**
Pocket/Notebook Fax/Modem 96/48/24	$79

THE COMPLETE PC

The Complete Communicator	$299
The Complete Communicator Gold	$389

AT&T Paradyne

DataPort 14.4 Fax V.32bis External	$389
DataPort 14.4 Fax V.32bis Internal	$359

US ROBOTICS

9600 Sportster Modem V.32 V.42bis Int	$257
9600 Sportster Modem V.32 V.42bis Ext	$279
14,4 Sportster Modem V.32bis V.42bis Int	$270
14,4 Sportster Modem V.32bis V.42bis Ext	$290
14,4 Sportster Mod/Fax V.32bis V.42bis Int	$290
14,4 Sportster Mod/Fax V.32bis V.42bis Ext	**$299**
14,400 CHST/PC-N Int/Ext V.42	$504/524
14,400 HST Courier DualV.32bis	$769
Modem Sharing Kit V.32bis	$620
Dual Modem Sharing Kit	$995

NATIONAL SEMI-CONDUCTOR

TYIN 2000 Fax, Modem, Answering M/C, ...Audio PlayBack	$189

PRINTERS

Star Micronix NX 1001 9 Pin 80 Col	$134

Pansonic

KXP4410i 5 ppm, 300dpi, 28 fonts	$620
KXP4450i 11 ppm, 300, 28 fonts	$1090

CANON

BJ 10EX 360DPI BLK/WHT	279 / 289
BJ 20 w/ auto sheet feeder	375

Okidata

OL400, 4ppm, 300dpi	$599
................w/ 2.5MB	$735
OL810, 8ppm, 300dpi	$1040
.....w/ 4.5MB	$1225
OL830, 8ppm w/ 2MB post script	$1278
Oki ML184T dot matrix, rugged industrial	$245
Oki ML320 320cps dot matrix	$315

LASERMASTER

Lasermaster 1000 dpi 10ppm	**$4995**

Citizen

200GX 9 pin	$159
GSX230 24 pin	$255
color option for Citizen 80 col printers	$42
GSX145 24 pin wide	$374
Notebook Pr. CTZPN48 w/bat	**$359**
Pr Cable 6"/15"	**$3/5**

Laser Extension Memory

HP IIP, IIIP	2/4MB	$88/147
HP II, IID	2/4MB	$104/163
HP IIISi	1/4MB	$59/148
HP IV	**4/8MB**	**$149/289**
Pan 441/2/30, 4450i	2/4MB	$118/178
Pan 4450	1MB	$113
Pan 4455	2MB	$134
Oki400	2MB	$99
Oki 800, 820	2/4MB	$103/163
Oki 810	1/2MB	$84/149
Epson 6000	2/4MB	$114/169
Epson 4000/8000	1/4MB	$114/179

PRINTER SHARING

AUTO SWITCHES

2 Computers to 1 Printer Bi-directional	$49
4 Computers to 1 Printer Bi-directional	$69
2/4 Auto-switches Uni-directional	$25 / 39

MANUAL SWITCHES

2 Computers to 1 Printer	$14
4 Computers to 1 Printer	$19

Printer sharing Networks - low cost alternatives to LAN - Please fax your specific requirements for a proposal..

We take orders for hard to find printer supplies

Memories/Math-Cos

FAST MATH-COs

by CYRIX / INTEL / IIT

2C87-10/XL	$32/$49
3C87SX-16/20/25	$65
3C87SX-33	$78
3C87DX-25/33	$69
3C87DX-40	$85

SIMMS/SIPPS

256x9-80/70	$11/12
1Mx9-80/70	$32
1Mx9-60	$33
4Mx9-80/70	$138
4Mx9-60	$149
DRAMs, and other SIMMs	available

ESIMMs - SUN / PC / LaserJet

1M x 36 - 80 / 70	$149 / 159
2M x 36 - 80 / 70	$259 / 269
4M x 36 - 80 / 70	$??????

MAIN BRANCH

ASA Computers
2354 Calle Del Mundo
Santa Clara, CA 95054
Tel: [408] 496-6853
Fax: [408] 988-0359

ASA Affiliated Stores

Marin County
Sigma Industries
904 S. Main, Lakeport
T: [707]263-5345 F: [707]263-0948

Daly City
Quadro Systems
2388 Junipero Serra Blvd
T: [415] 301-1800 F: [415] 755-0682

Pleasant Hill
STI Computers
609 Gregory LN #110 [sandalwdctr]
T: [510] 256-9938 F: [510] 256-9983

San Francisco (City)
Computer Systems 2000
350 Sansome St. # 1030
T: [415] 421-2001 F: [415] 399-0648

Hours
Differ store to store
Mon. to Fri 9 AM to 6:30 PM
Saturday 11AM to 4PM.

Stores Outside Bay Area

Indianapolis, IN
The Computer Centre
Tel: [317] 291-9211
Fax: [317] 879-1410

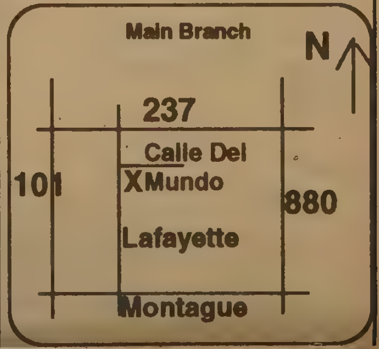
Bangor, ME
Actec Enterprises
Tel/Fax: [207] 990-3552

Phoenix, AZ
AIKA Systems
Tel: [602] 443-3618

Minnetonka, MN
Mehr Int'l
Tel/Fax: [612] 935-8204

Resellers call for reseller price list. **Dealers** call [408] 988-2973 for our dealership program.

All branches listed here are independently owned and operated, and are responsible for their own liabilities...



WHY BUY FROM ANYONE ELSE . . . WHEN YOU CAN BUY FROM THE BEST—

UNIVERSAL COMPUTER PRODUCTS

1 YEAR PARTS/
1 YEAR LABOR
WARRANTY
ON ALL
SYSTEMS

486-33 MHz W/64K CACHE

- ▼ 4 Mb RAM installed
- ▼ 1.2 and 1.44 Mb Floppy Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ AT Multi I/O (2S/1P/1G)
- ▼ Clock/Calendar with battery back-up
- ▼ Enhanced 101 Keyboard
- ▼ 120 Mb IDE Hard Drive
- ▼ SVGA Monitor w/Card (1024x768 .28Dp)
- ▼ MS-DOS 5.0

$1450

386-33 MHz W/64K CACHE

- ▼ 4 Mb RAM
- ▼ 8 Slots and Socket for Intel 80387 DX
- ▼ 200W Approved Power Supply
- ▼ Real Time Clock with Battery backup
- ▼ 2 Serial, 1 Parallel, 1 Game Port
- ▼ 101 Enhanced Keyboard
- ▼ 1.2 and 1.44 Mb Floppy Drive
- ▼ 120 Mb IDE Hard Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ SVGA Monitor w/Card (1024x768 .28Dp)
- ▼ MS-DOS 5.0

$1150

386 SX 25 MHz

- ▼ 0 Wait State on Motherboard
- ▼ Main Memory 2 Mb
- ▼ Expandable to 2 Mb/4 Mb/8 Mb
- ▼ Support CoProcessor Intel or Weitek
- ▼ AMI Bios set up
- ▼ 2 Serial, 1 Parallel, 1 Game Port
- ▼ 101 Enhanced Keyboard
- ▼ 1.2 and 1.44 Mb Floppy Drive
- ▼ 80 Mb IDE Hard Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ SVGA Monitor w/Card (1024x768)
- ▼ MS-DOS 5.0

$880

REPAIR & UPGRADE SERVICES

ON IBM & IBM COMPATIBLES

- No appointment necessary
- Fast turn-around
- Courteous service
- Experienced technicians

ADD ON BOARDS

AT I/O Card 2S/1P/1G	$20
Mono Graphic/Printer	$20
Color Graphic/Printer	$35
XT Hard Disk Cont	$50
MFM 1:1 HD/FD Cont	$79
IDE Dual HD/FD Cont	$20
SCSI 1:1 HD/FD Cont	$99
DTC 7287 RLL Cont	$80
Orchid Pro Designer w/1 Mb	$180
Paradise VGA Card	$70
VGA Card w/256K	$40
Oak VGA Card w/512K	$58
Trident SVGA w/1 Mb	$70
Everex Ram 3000 Expansion Card	$90
Everex Ram 10K Expansion Card	$150

CASES AND POWER SUPPLY

Baby AT w/200W Power	$70
Baby Tower w/200W Power	$70
Mid Tower w/220W Power	$110
Full Tower w/250W Power	$160
165W (XT) Power Supply	$45
200W Power Supply	$60
230W Power Supply	$60

DRIVES

Frame for 3.5″ Hard & Floppy Drive	$5
CONNER	
CP-3000 40Mb IDE	$185
CP-30084 80Mb IDE	$220
CP-30064H 60Mb IDE	$225
CP-30104 120Mb 19ms IDE	$275
CP-30204 200Mb 16ms IDE	$350
MAXTOR	
LXT-7080A 80Mb 19ms IDE	$220
LXT-7120A 130Mb 15ms IDE	$270
LXT213A 212Mb 16ms IDE	$349
LXT340 340Mb 13ms IDE	$Call
SEAGATE	
ST-351A 40Mb 28ms IDE	$150
ST-3120 100Mb IDE	$Call
ST-1239A 211Mb 15ms IDE	$Call
TEAC	
360K 5.25″	$60
720K 3.5″	$60
1.2Mb 5.25″	$60
1.44Mb 3,5″	$60

INTEL MATH CO-PROCESSORS

80287-10 For 286 Systems	$40
387 SX-16	$115
387 DX-20	$99
387 DX-25	$99
387 DX-33	$99

MEMORY CHIPS

DRAM	
1Mb x1-8	$4.50
256K -8/10	$1.25
256K x4-8	$4.50
64K -10	$1
SIMM	
4Mb x9-7	$135
1Mb x9-7/8	$40
1Mb x3-7/8	$35
SIPP	
1Mb x9-8	$40
256K x9-8	$12

MODEMS

Everex 2400Baud Internal	$75
Everex 2400Baud Int. w/MNP5	$150
Everex 2400Baud External	$175
Everex 2400Baud Ext. w/MNP5	$195
USRobotic 9600Baud Internal	$290
USRobotic 9600Baud External	$320

MONITORS

NEC 3FG	$649
NEC 4FG	$749
Sony 1304 SVGA	$579
14″ Monochrome	$105
SVGA Monitor 1024x768 .28 dp	$275
SVGA Monitor 1024x768 .39 dp	$240
Viewsonic 6	$350
Viewsonic 7	$Call
14″ Monochrome VGA	$125
Relisys 14″ SVGA Non-Int	$310
ST 14″ SVGA Non-Int (428-VESA)	$330

MOTHERBOARDS

XT 10MHz Motherboard	$70
286 12MHz Motherboard	$85
386 SX 25MHz Motherboard	$120
386 DX 33MHz Motherboard	$220
386 DX 40MHz Motherboard	$230
486 DX 33MHz Motherboard	$495
486 DX 50MHz Motherboard	$Call

PRINTERS

Citizen 200GX (9 Pin)	$169
Citizen GSX140+ (24 Pin)	$299
Citizen GSX230 (24 Pin)	$255
Citizen GSX145 (132 Column)	$Call
Citizen Color Upgrade Kit	$49
Panasonic 1180i (9 Pin)	$159
Panasonic 1123 (24 Pin)	$199
Panasonic 4410 Laser	$629
Panasonic 4450 Laser	$Call
Toner KX-P450	$37
Toner KX-P451	$\$39^{95}$
Toner KX-P453	$\$35^{95}$
HP 51604A	$\$11^{95}$
HP 51608A	$\$19^{95}$
HP 92261A	$\$11^{95}$
HP 92275A	$69
HP 92295A	$83

TAPE BACKUP

Colorado 120Mb/250Mb	$175/249
External Kit for Colorado Drive	$110

TRACKMAN

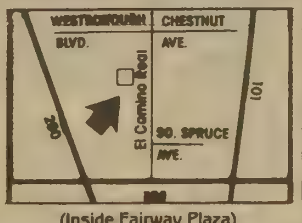
Logitech Trackball	$85
Logitech Serial Mouseman	$70
Microsoft Bus Mouse	$90
Microsoft Serial Mouse	$85
DEXXA Mouse w/Windows 3.1	$75
DEXXA Mouse	$27
Summasketch II	$299
Mouse Systems A3 Mouse for Mac	$75
Mouse Systems A3 Trackball for Mac	$75
Mouse Systems Page Brush/Color Scanner for Mac	$600

PRINTER RIBBONS & DATA CARTRIDGES ARE AVAILABLE

UNIVERSAL COMPUTER PRODUCTS

951 El Camino Real, South San Francisco, CA 94080
(415) 583-9736 Fax (415) 583-3457
Mon.-Fri.: 9am-6pm Sat: 10am-5pm

Prices subject to change w/o notice • Not responsible for misprints



(Inside Fairway Plaza)

THE BEST PRICE IN TOWN!

$815
486DX2-66MHz w/64K Cache

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$715
486-50MHz w/64K Cache

Intel 80486-50MHz CPU

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

486-33MHz w/64K Cache

w/Intel 80486-33MHz CPU	$575
w/Cyrix CPU	$435

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

Optional for 486 Systems

VESA Local Bus	Add $35
EISA	Add $150
Orchid VESA Local Bus Motherboard	Add $195
TS4000 VLB w1MB	Add $120
Orchid Fahrenheit VLB w/1M	Add $175
IDE 32-Bit	Add $65

OPTIONAL:
w/system purchase

12" Mono Monitor & Card	$85
Super VGA Monitor (1024x768 0.39) w/SVGA Card 512K	$250
Super VGA Monitor (1024x768 0.28) w/SVGA Card 512K	$290
Non-Interlaced SVGA Monitor (1024x768 0.28) w/1M Card	$540

$260
386SX-33MHz

- 1MB Expandable to 8MB on Board
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$250
386SX-25MHz

- Landmark= 36
- 1MB Exppandable to 8MB on Board
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

NOVELL.

Sales...
Custom Design Service...
Installation and Maintenance...
Extended Software Support...

$235
286-20MHz 0 Wait

- Landmark=21
- 512K Expandable to 4MB
- Real Time Clock
- 8 Expansion Slots
- 80287 Socket
- 1.2 or 1.44MB Floppy Drive
- 1:1 HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$220
286-12MHz 0 Wait

- 6/12MHz 0 Wait
- 512K Expandable to 4MB
- C & T Chip Set
- EMS 4.0 Built-in
- Shadow RAM
- Landmark=16
- 1:1 HD/FD Controller
- Real Time Clock
- 1.2 or 1.44MB Floppy Drive
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

Available through
STEPFORD
(415) 553-3837

BELMONT SYSTEMS INC.
(Belmont Computer Products)
1555 Industrial Road, San Carlos CA 94070

(415) 598-9058
FAX (415) 598-0186
Store Hours: M-F 9-6
Sat. 10-3

PRICE IS NOT ALL WE OFFER:

BEST QUALITY•STRONGEST SUPPORT STAFF•6 YEARS BUSINESS EXPERIENCE

$365
486SX-25MHz

- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$310
386-40MHz w/64K Cache

- 1MB Expandable to 32MB on Board
- 64K Static Cache Memory
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Socket for 80387
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

$305
386-33MHz 64K Cache

- 1MB Expandable to 32MB on Board
- 64K Static Cache Memory
- Landmark=57
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- Socket for 80387
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

44MB 28MS Hard Disk	$135
85MB 16MS	$180
125MB 16MS	$220
170MB 16MS	$250
212MB 16MS	$295
340MB 15MS	$450
510MB 12MS	$840

Keyboards

Mitsumi 101 Key	$39
Keytronic 101 Key	45
Maxiswitch 101 Key	45
101/102/Ultra	73/73/102

Floppy Drives

TEAC/Epson 1.2MB	$55
TEAC/Epson 1.44MB 3.5"	55

Hard Disks

Conner 3000 40MB	$150
Western Digital 85MB	195
Conner 85MB	195
Conner 30104 120MB	240
Western Digital 125MB	240
Maxtor 7120A 130MB 15ms	240
Conner 170MB	270
Western Digital 210MB	340
Conner 30204 210MB	340
Maxtor 340MB	530
Western Digital 340MB	530
Conner 3504 510MB 12ms	870
Fujitsu 512MB 12ms	870

Modems

2400 Baud (Int)	$40
2400 Baud (Ext)	75
9600 Baud Int. V.32	180
Fax Modem (9600 Fax, 2400 Modem)	65
14,400 Modem, 14,400 Fax	215

Interface Cards

Mono Graphic Card	$20
VGA Card (16 Bit 800x600)	35
OAK SVGA (1024x768 512K)	45
Trident VGA w/1M RAM	65
Orchid Pro Designer IIS w/1MB	115
Orchid Pro Designer IIS w/Sierra Ramdac	125
Orchid Fahrenheit (1280x1024)	175
ATI Ultra w/Mouse	250
ATI Ultra Pro w/2MB VRAM	420
Diamond Speedstar 24X	160
Diamond Stealth w/1M VRAM	205
AT M I/O (2S,1P,1G)	25
1:1 FDC/HDC (MFM)	65
IDE Card w/cable	25
Adaptec SCSI 1542B w/Kit	265
DTC 3290 SCSI (EISA) w/512K	450

Monitors

14" Flat Screen	$95
Super VGA (1024x768) .39	220
Super VGA (1024x768) .28	260
Non-Interlaced SVGA Monitor	290
Sony 1304S	545
Sony 1604	965
Viewsonic 6	335
Viewsonic 6FS	545
Viewsonic 7	950
Nanao F550i 17" 1280x1024 .28	1015
NEC 3FGX/4FGX	615/725

Motherboards

286 6/12MHz	$75
386SX-25MHz	110
386SX-33MHz	120
386-33MHz 64K Cache	180
386-40MHz 64K Cache	185
486-33MHz w/64K Cache	450
486-50MHz w/64K Cache	580

Printers

Panasonic KX-P 1180 w/Cable	$155
Panasonic KX-P 1123w/Cable	205
Panasonic KX-P 1624 w/Cable	345
Panasonic 1124i w/Cable	285

Miscellaneous

287-8/10	$40/40
387SX	75
387-25/33/40	75/85/95
150W (XT) Power Supply	40
230W Power Supply	48
Logitech Mouse Man	65
Logi Trackman Serial / Bus	85
Microsoft Serial / Bus Mouse	85
DFI Mouse (3 Button, Microsoft Comp.)	25
Mini Vertical Case w/PS	65
Mid Mini Vertical Case w/PS	95
Full Vertical Case w/PS	125
Colorado 120MB Tape Backup	165
Colorado 250MB Tape Backup	205
Sony CD-ROM	285
RAM DIP / SIPP/ SIMM	Call

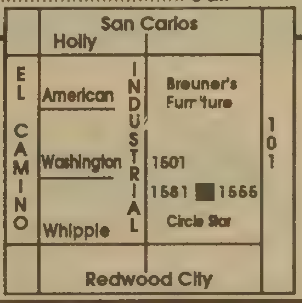
TERMS & CONDITIONS:

- •Company, Government PO's Welcome
- •UPS Shipping Daily

All Prices and contents subject to change w/o notice.
All brand names are registered trademarks.
Co. Term on credit approval.

Welcome to visit our
4500 sq ft. showroom!
Computers, Monitors and
printers are now
on display!

Located in the
San Carlos Commerce
Center Office Park



AIR
MICRONICS
ORCHID

100% VESA VL-BUS SOLUTIONS

Call (408) 943-1660 Fax: (408) 943-9660

AIR 486/33 ISA VL

- Intel 486DX-33 CPU, 256K Cache
- Desktop/Mini-Tower w/200-Watt
- 3 VL-Bus/ISA Slots
- S3 VLB/1 MB Video Adapter
- IDE/VLB Controller
- 2 Serial, Parallel, 1 Game
- 120 MB Hard Disk
- TEAC 1.2 & 1.44 MB Floppy Drives
- 4 MB Memory
- 101 Enhanced Keyboard
- 14" .28mm SVGA Color Monitor

$1645

ORCHID 486/33 ISA VLB

- Intel 486DX-33 CPU, 256K Cache
- Desktop/Mini-Tower w/200-Watt
- 2 VL-Bus/ISA Slots
- S3 VLB/1 MB Video Adapter
- IDE/VLB Controller
- 2 Serial, Parallel, 1 Game
- 120 MB Hard Disk
- TEAC 1.2 & 1.44 MB Floppy Drives
- 4 MB Memory
- 101 Enhanced Keyboard
- 14" .28mm SVGA Color Monitor

$1745

MICRONICS 486/33 ISA VL

- Intel 486DX-33 CPU, 256K Cache
- Desktop or Mini Tower/220 Watt
- Built-In IDE/VL Controller
- Built-In 2 Serial/1 Parallel
- 2 VL-Bus/ISA Slots
- Micronics Video Card ATI 68800 Mac 32, 1 MB V-RAM
- 120 MB Hard Disk
- TEAC 1.2 & 1.44 MB Floppy Drive
- 4 MB Memory Installed
- 101 Enhanced Keyboard
- 14" .28mm SVGA Color Monitor

$1995

UPGRADE OPTIONS:

486-50 MHz System	add $160
486DX2-66 MHz System	add $260
210 MB Hard Drive	add $110
8 MB Memory	add $140
14" .28mm N.I. SVGA	add $40
14" AAmazing .28mm NI SVGA	add $50
15" ViewSonic 6fs	add $345
Middle Tower Case	add $20
Full Tower Case	add $40

AIR 486 EISA VL

486DX2-66/DX50/DX33

- Intel 486 CPU, 256K Cache DX2-66 or DX50 or DX33
- Full Tower Case w/250-Watt Power
- 3 VL-Bus/EISA Slots
- S3 VLB/1 MB Video Adapter
- A.I.R. SCSI2-VL Controller
- 2 Serial, Parallel, 1 Game
- 213 MB SCSI Hard Disk
- TEAC 1.2/1.44 MB Floppy Drive
- 8MB Memory Installed
- 101 Enhanced Keyboard
- 15" .28mm 1280x1024 Color Monitor

$2915/2845/2665

3486 VESA Local Bus

(386 Upgradable to 486)

- Intel 486DX-33 CPU, 256K Cache or Use 386-33, 128K Cache
- Desktop/Mini-Tower w/200-Watt
- 2 VL-Bus/ISA Slots
- ET4000 VLB/1 MB Video Adapter
- IDE/VLB Controller
- 2 Serial, Parallel, 1 Game
- 120 MB Hard Disk
- TEAC 1.2 & 1.44 MB Floppy Drives
- 4 MB Memory
- 101 Enhanced Keyboard
- 14" .28mm SVGA Color Monitor

$1515/1235

NICE 486-33 VL

(MB Made in USA)

- Intel 486DX-33 CPU, 256K Cache
- NICE Motherboard, Made in USA
- Desktop/Mini-Tower w/200-Watt
- 2 VL-Bus/ISA Slots
- S3 VLB/1 MB Video Adapter
- IDE/VLB Controller
- 2 Serial, Parallel, 1 Game
- 120 MB Hard Disk
- TEAC 1.2 & 1.44 MB Floppy Drives
- 4 MB Memory
- 101 Enhanced Keyboard
- 14" .28mm SVGA Color Monitor

$1625

NOTEBOOK COMPUTER 486DX2-50/DX33

9" Passive Color LCD

$2895/2795

486DX-33

10" Mono LCD Display

$2095

- 4 MB Memory, 8 MB Max
- 120 MB IDE Hard Drive
- 2 Serial/Parallel Port
- Optional Docking Station

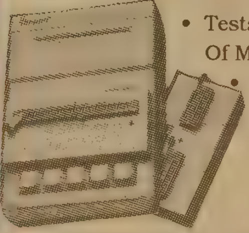
NON-VLB SYSTEMS	80MB	120MB	200MB
486DX-50 ISA 4 MB, 256K Cache	$1402	$1442	$1545
486DX-33 ISA 4MB, 128K Cache	1226	1266	1369
386DX-40 ISA 4 MB, 128K Cache	959	999	1102
386SX-25 ISA, 2 MB	822	862	965

System Configuration:

- * Teac 1.2MB or 1.44 MB Floppy
- * One Year Part Warranty
- * Life Time Tech Support
- * Two Year Labor Warranty
- * IDE Controller w/ 2S/1P/1G
- * 101 Keyboard
- * Compact Desktop or Mini Tower w/ Power Supply
- * 14" .28mm SVGA Monitor & 1 MB SVGA Card

EDI-Able

DRAM SIMM/SIP TESTER ....#3201A



- Tests All Kinds Of Memory Devices
- For IQC, Production,or Field Trouble-Shooting

CALL FOR MORE INFORMATION

Chroma

Authorized Value Added Reseller

- PC based EDI (Electronic Data Interchange) Translation Software
- 4th GL Data Base Language
- One Stop Shopping For All Your EDI Needs

CALL FOR MORE INFORMATION

Video Cards & Monitors

VGA2 Window Accelerator, 512K	$36
VGA3 Hi-Color Win. Accel, 1 MB	75
Realtek SVGA Card, 1 MB	50
Tseng ET4000, Hi-Color, 1 MB	85
W.D. 90C31 Window Accel. 1 MB	99
AAmazing 8486QX NI-SVGA, .28mm	300
AAmazing 1528, 15" 1280x1024,.28mm	435
ViewSonic 6E	350
ViewSonic 6FS 15"	600
ViewSonic 7	1025
Morse 17" .26mm 1280x1024 Color	925

Multimedia

Sony CDU31A Internal CD-ROM	$275
Sony CDU535 Internal CD-ROM	310
Sony CDU535 External CD-ROM	345
Sony CDU541 SCSI Int. CD-ROM	375
Texel DM3024 SCSI Int. CD-ROM	415
Texel DM5024 SCSI Ext. CD-ROM	500
Creative Sound Blaster Pro	180
Creative Video Blaster (Come To See Demo)	345
ProAudio Spectrum Plus Sound	170
Orchid Fahrenheit VA/VLB	220

Special This Month

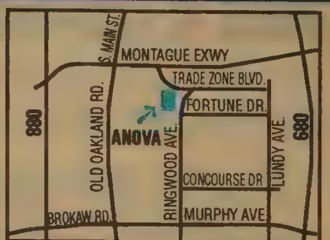
Cannon BJ10ex Portable Bubble Jet	**$259**
Cannon BJ200 Bubble Jet Printer	**359**
Cannon LBP-4SX Laser Printer	**879**
Strados Pro CD-ROM Ready Kit Mitsumi CD-ROM, Aztek Sound Card 2 Speakers and 12 Software, 3 CD-Titles	**435**
2400 Modem/9600 Send Fax	**35**
2400 Pocket Modem	**50**
14400 Modem Fax Card w/V.32B/V.42/V.42B	**230**
Laplink Software 4.0 for Notebook	**90**

PLEASE CALL FOR OTHER UNLISTED PRODUCTS & PRICES: PRICES SUBJECT TO CHANGE WITHOUT NOTICE

ANOVA MICROSYSTEMS INC.
2287 Ringwood Ave. San Jose, CA 95131

(408) 943-1660
1-800-238-7111
Toll Free Outside California
Fax (408) 943-9660

MON-FRI 9:00am-6:30pm
SAT 10:30am-5:00pm



ART COMPUTER TECH INC.

424 S.MAIN STREET., MILPITAS,CA
Tel. (408) 946-7852 * FAX (408) 946-7892

Make us your last stop, we will beat any advertised price

What You See Is What You Get!

1 Year warranty on parts & labor

NANAO F550i $1018

SPiDER 32VLB $155

ORCHID VLB FAHRENHEIT $172

245 MB MAXTOR $320

Be smart! Join our satisfied customers

AMD, ADAPTEC, CIRRUS LOGIC, UC DAVIS, CONDUCTUS, ASTEC, ELANTEC, SEAGATE, STANFORD UNIVERSITY, UC BERKELEY, LAWRENCE LIVERMORE LAB., ANALOG DEVICES, FRANK & RIVERMAN CPA, ACCUSON, MADERA CITY POLICE DEP., NASA, ALLIED ENGINEER, TESTERION and many more

BASIC SYSTEM CONFIGURATION: Motherboard & CPU, 1MB memory installed, 1:1 2HD/2FD controller, 1.2MB or 1.4MB Floppy drive, Internal Clock (Calendar, Enhance Case or Mini Tower Case with Power Supply, and 101 Enhance Keyboard).

SPECIAL BASIC

- + 1.2 & 1.4FD TEAC+ MOUSE + 4MB/ 70ns.
- + 120-130HD (Conner/Maxtor)
- +64 K Cache MOTHERBOARD &CPU
- + New AMI BIOS + 1:1 IDE 2HD/2FD Controller + 101 Keyboard.
- + Enhanced case or Mini Tower case
- + 2 serial/1 paralell/1 game
- + CLOCK/CALENDAR w/BATTERY BACKUP
- + 230W Power supply.

	Motherboard + CPU	BASIC system	VESA Local bus system Basic system w/ 4MB+1.4FD+210MB HD+VLB Video card+VIEWSONIC 6E	+SVGA SAMSUNG (ESP) Interl (1024x768) 0.28P +16bit (512K) Trident	IMPRESSION PLUS 1024x768 28P +16 BIT (1Meg) Trident	+Viewsonic 6 or ADI Noninterl (1024x768) 28P + 16 million colors (1Meg) Luminar 24BITS
ORCHID/DIAMOND 486/33 VESA	$610	$770	$1747	$ 1410	$ 1454	$ 1540
386-33/40w/64K exp up to 256 cache	$ 156	$ 315	PLEASE CALL	$ 956	$ 1001	$ 1087
486-33/64K exp up to 256 cache	$ 400	$ 567	$1517	$ 1207	$ 1252	$ 1338
486-50/64K exp up to 256 cache	$ 546	$ 705	$1652	$ 1346	$ 1390	$ 1476
486-66/64K	$ 643	$ 800	$1731	$ 1435	$ 1478	$ 1564
486-50EISA	$ 730	$ 900	$1930	$ 1537	$ 1580	$ 1666

SPECIAL

*Lowest price for **VESA LOCAL BUS** system just add $50.
* Introducing the best **SPiDER 32VLB** and **Luminar 24BITS.**
* Lowest price for **Netware** installation and configuration. Please call.

NEW HARD DRIVES

40mb/18ms (IDE)	$150
80mb/18ms (IDE) Maxtor	178
120mb (IDE)	220
120mb/16ms (IDE) Conner	230
130mb/15ms (IDE) Maxtor	235
170mb/18ms (IDE)	250
200mb (IDE) Maxtor	305
200mb/116ms (SCSI)	350
240mb/15ms (IDE) Quantum	430
245mb/15ms Maxtor	320
340mb/15ms (IDE) Maxtor	562
540mb/12ms (IDE)	830
676mb/16ms (IDE)	1020

MULTIMEDIA

Chinon CD-ROM	$429
Mitsumi CD ROM w/Card	235
NEC CD-ROM 84M	519
SONY CD-ROM CDU031/541	308/414
Creative Lab. CD ROM Upgrade Kit	447
MEDIAVISION Pro 16 Media System	970
MEDIAVISION ProAudio Spectrum 16	209
MEDIAVISION ProAudio Plus	150
Microsoft DOS 5.0/Windows 3.1	45/45
Microsoft Mouse	60
SoundBlaster Pro w/MIDI Kit	177
SoundBlaster basic	83

RAM & MATH COPROCESSORS

• 4 MB - 70 Simm	$125
• 4 MB - 80 Simm	120
• 1 MB - 60	35
• 1MB - 70	30
• 1 MB - 80	29
387SX-20/25	30/35
387DX-33/25/20/16	60/55/45/35

VIDEO CARDS AND MONITORS

Trident VGA-521 (1024x768, 16 bit)	$36
Trident 1MB (1024x768,256K colors)	65
Video 7VRAM II w/1MB	338
Diamond Stealth 24	158
Diamond Speed Star 24X w/Hi-Color	148
SPiDER 32VESA Local Bus	155
Luminar 24BITS 16M colors	110
Orchid VLB Fahrenheit	172
Orchi Prodesigner IIs	115
Orchid Fahrenheit DRAM 24-bit w/1MB	149
ATI Graphic Vantage w/mouse	215
ATI Graphic Ultra w/mouse	325
Nanao 9080i (16", 1280x1024, 0.28)	890
Nanao F550i (17", 1280x1024, 0.28)	1020
Nanao F560i (17",1280x1024,0.26)	1759
NEC 3FGX (15", 1024x768, 0.28)	619
NEC 4FG (15", 1024x768, 0.28)	729
NEC 5FG (17", 1280x1024, 0.31)	1,338
MAG 15F (1280x1024, 0.28)	569
MAG 17F (1280x1024, 0.26)	1,100
Sony CPD 1304s (14", 1024x768, 0.25)	540
Sony CPD 1604s (17", 1024x768, 0.25)	946
Sony CPD 1403s (14",1024x768,0.25)	595
HITACHI CM-2085M+ (20")	1320
HITACHI CM-2187M (21")	2185
TOSHIBA P17C01 (17")	1156
TOSHIBA P21CM00 (21")	1790
TAXAN MV875+ (17")	1175
IDEK MF-5217 (17")	975
IDEK MF-5317 (17")	1025
Super VGA (1024x768) Monitor 0.28	248
Super VGA Non-Interlaced Monitor 0.28	279
Viewsonic 4E/5E/5+	280/380/480
Viewsonic 6E	320
Viewsonic 6FS	535
Viewsonic 7	960
Viewsonic 8	1510

HARD FLOPPY DRIVE ADAPTERS

IDE 2FD/2HD	$14
IDE 4FD/2HD	35
IDE cache controller (promise)	120
IO with 2s/1p/1g	12
Monochrome card	12
Adapted SCSI 1542KB w/Kit (ISA)	260
Ultrastor SCSI 24F	454
Ultrastor ESDI 22F/22C (EISA)	478/674

KEYBOARDS

101 Enhanced Keyboard	$21
Maxiswitch	31
Keytronics	36
Focus 2001/5001	38/55
Omnikey 102 /Ultra	66/89

MISCELLANEOUS

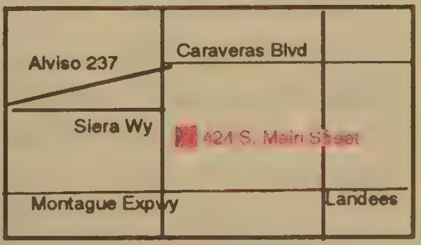
Internal Modem 2400 Baud	$34
Fax Modem (9600 Fax, 2400 Modem)	53
Fax Modem 9600 Fax, 9600 Modem	175
Fax Modem 14400 Fax, 14400 Modem	190
3-Button mouse	13
Logitech Mouseman Serial (400dpi)	60
Logitech Mouseman Bus (4000dpi)	63
Colorado Tape Backup DJ-10 120M	169
Colorado Tape Backup DJ-20 250M	210
Baby AT/Mini Tower Case w/230W PS	57
Medium Tower Case 2/230W PS	90
Full Tower Case w/230W PS	100

We only use INTEL CPU for all 486 systems

ART COMPUTER TECH 386 and 486 Are Fully Compatible with WINDOWS 3.1, MS-DOS, AUTOCAD, OS/2, Novell Banyan, UNIX, SCO and other software.

* Prices&Availability subject to change w/o notice
* We accept VISA&Mastercard
* Not responsible for typos
* Price based on cash price
* Government P.O accepted
* Company Terms on credit approval

424 S. MAIN ST.
MILPITAS, CA 95035
TEL.(408) 946-7852
FAX.(408) 946-7892
BUS. HRS M-F 9:30-6:00
SAT&SUN 11:30- 4:00



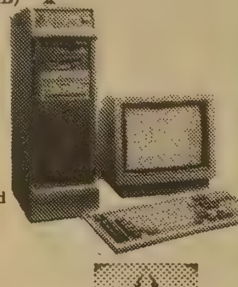
AiM FOR THE BEST !

90 Days 0% Financing For Systems Purchase **

FREE Software Installation With System Purchase

We Do Custom Systems Configuration & Upgrade

ORCHID 486-25/33/50/66
32-Bit VESA Local Bus



- Intel 486-25SX/33DX/50DX/66DX2 MHz
- ORCHID Superboard w/256KB Cache
- 4MB DRAM Simm 70ns (up to 32MB)
- 245MB 14ms IDE Hard Drive
- ORCHID Fahrenheit VLB w/1MB (up to 2MB)
  32-Bit VESA Local Bus
  1280x1024 Max. Resolution
  16.8 Million Max. Color Display
- TEAC 1.2MB Floppy Drive
- TEAC 1.44MB Floppy Drive
- KeyTronic 101+ Enhanced Keyboard
- Logitech Dexxa Mouse w/ Pad
- VESA Local Bus IDE Controller
  32-Bit 2HD/2FD VESA Local Bus
  Max. 8 MB/s data transfer rate
- 2 Serials, 1 Parallel, & 1 Game Ports
- Tower Case w/ 230 Watts Power Supply
  Daul Cooling Fan

$ 1449 / 1579 / 1789 / 1899

SX25 / DX33 / DX50 / DX2-66

(Monitor not included)

486-25 / 33 / 50 / 66
32-Bit VESA Local Bus

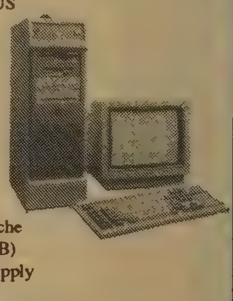
*Intel 486-25SX/33DX/50DX/66DX2 MHz
*128KB Cache Memory
 (up to 256 KB)
*4MB DRAM Simm 70ns (up to 32MB)
*170MB 15ms IDE Hard Drive
*SAMSUNG SyncMaster 3 1024x768
 0.28dp SVGA monitor
*ORCHID Fahrenheit VLB W/1MB
*TEAC 1.2MB Floppy Drive
*TEAC 1.44MB Floppy Drive
*101 Enhanced Keyboard
*Microsoft Compatible Mouse w/ Pad
*VESA Local Bus 2HD/2FD IDE Controller
 w/ 2 Serials, 1 Parallel, & 1 Game Ports
*Tower Case w/230 Watts Power Supply

Pentium Upgradeable

$ 1449 / 1599 / 1719 / 1819

SX25 / DX33 / DX50 / DX2-66

intel® 486-33/50/66 MHz EISA
32-Bit EISA VESA Local Bus



*Intel 486-33DX / 50DX / 66DX2
*256KB Cache VESA EISA LOCAL BUS
*8MB DRAM 70ns (up to 32MB)
*Orchid Fahrenheit VLB w/1MB
 (up to 2MB) 32-Bit VESA Local Bus
 1280x1024 & 16.8 Million Color
*TEAC 1.2MB Floppy Drive
*TEAC 1.44MB Floppy Drive
*KeyTronic 101+ Enhanced Keyboard
*Logitech 3-Buttom Mouse w/ Pad
*Maxtor 213MB 15ms SCSI Hard Drive
*Data Technology 32-Bit EISA SCSI Cache
 Controller w/512KB (upgradable to 4MB)
*Full Tower Case w/250 Watts Power Supply
 & Daul Cooling Fan

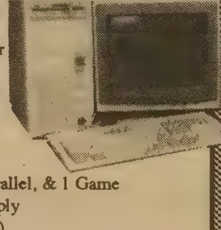
Pentium Upgradeable

$ 2199 / 2349 / 2449

DX33 / DX50 / DX2-66

(Monitor not included)

80386-25/33/40 MHz ISA
85MB HD



*386-25SX/25DX/33DX/40DX
*64KB Cache Memory (For 33DX/40DX only)
*4MB DRAM Simm 70ns(For 33DX/40DX only)
*2MB DRAM Simm 70ns(For 25SX/25DX)
*85 MB IDE Hard Drive
*14" 1024x768 0.39dp SVGA Color Monitor
*Trident 9000 1024x768 w/512KB
 SVGA Graphic Card
*1.44MB Floppy Drive
*101 Enhanced Keyboard
*Microsoft Compatible Mouse w/ Pad
*2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game
*Mini Tower Case w/ 230 Watts Power Supply
(32KB Cache Memory for 386SX25 add $10)

$ 799 / 839 / 959 / 979

SX25 / DX25 / DX33 / DX40

486-25 / 33 / 50 / 66
64KB Cache 130MB HD ISA

*Intel 486-25SX/33DX/50DX/66DX2 MHz
*64KB Cache Memory
 (up to 256 KB)
*4MB DRAM Simm 70ns (up to 32MB)
*130MB 15ms IDE Hard Drive
*SAMSUNG SyncMaster 3 1024x768
 0.28dp SVGA monitor
*REALTEK SVGA 1024X786 Graphic
 Card w/1MB & 65535 Hi-Color
*TEAC 1.2MB Floppy Drive
*TEAC 1.44MB Floppy Drive
*101 Enhanced Keyboard
*Microsoft Compatible Mouse w/ Pad
*VESA Local Bus 2HD/2FD IDE Controller
 w/ 2 Serials, 1 Parallel, & 1 Game Ports
*Tower Case w/230 Watts Power Supply

$ 1289 / 1429 / 1599 / 1699

SX25 / DX33 / DX50 / DX2-66

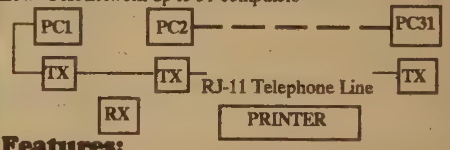
Novell Network Systems

*System Design & Consultation
*Complete Cable Installation
*Solftware Support Installation

*EN 2000 16-Bit Ethernet Card		$79
*EN1000 8-Bit Ethernat Card		$74
*Novell 2.2 5 User to 50 User	From	$530
*Novell 3.11 5 User to 100 User	From	$630
*Netware Nite		$69

Error Free Printer Sharing

Low -Cost network up to 31 computers



Features:

*250K bits/sec. data transfer speed
*Normalize 4 wires RJ-11 telephone cable
*Up to 4000 feet transmission distance
*Up to 31 computers link

Bufferlink: Transmitter(TX)$45; Receiver(RX)$49

Monitors

14" SVGA Color Monitor 1024x768 .28	$269
14" SVGA Color Monitor 1024x768 .28 NI	$299
Samsung 15" SyncM. 15 .28 1024 NI 70Hz	$489
Samsung 17" SyncM. 4+ .28 1280 NI 70Hz	$849
Samsung 17" SyncM. 5c .26 1280 NI 72Hz	$919
ViewSonic 4E 1024x768 .28	$299
ViewSonic 5E 1024x768 .28 NI 72Hz	$415
ViewSonic 5+ 1024x768 .25 NI 70Hz	$525
ViewSonic 6E 1024x768 .28 NI 60Hz	$349
ViewSonic 6FS 1024x768 .28 70Hz Flat	$599
ViewSonic 7 17" 1280x1024 .28 NI 72Hz	$999
ViewSonic 8 20" 1280x1024 .31 NI 72Hz	$1550
SONY 1430 1024x768 .25 NI 72Hz	$589
SONY 1604S 17" 1024x768 .25 NI 70Hz	$999
NEC 15" 3FGx 1024x768 .28 NI 60Hz	$649
NEC 15" 4FG 1024x768 .28 NI 70Hz	$749

* w/system

Graphic Cards

Trident 9000 1024x768 w/512KB	$45
REALTEK 1024x768 w/1MB & Hi Color	$65
Trident 8900C 1024x768 w/1MB	$65
Paradise Graphic Accelerator w/1MB&Hi-C	$189
Tseng Lab 1024x768 w/1MB	$99
Orchid Fahrenheit VESA VLB w/1MB	$175*
Orchid Fahrenheit VESA VLB w/VA 1MB	$199*
VESA IDE Controller 2HD/2FD	$69*
Orchid Fahrenheit VA w/1MB & Hi-Color	$199*
Orchid P9000 /VLB w/3MB & Hi-Color	$419
Diamond SpeedStar w/1MB 24-bit Hi-Color	$148
Diamond 24X w/1MB & Hi-Color	$179
Diamond Stealth 24VLB w/1MB True-Colo	$189
Diamond Viper VLB w/1MB w/ True-Color	$369
ATI Ultra Graphic Pro w/2MB VRAM (ISA,EISA,MCA,VL)	$529

Softwares

Microsoft DOS 5.0	$35*
IBM OS/2 Version 2.0	$79*
Microsoft Windows 3.1	$35*
Microsoft Acess for Windows	$95
Microsoft Excel 4.0 for Windows	$125
Microsoft Entertainment Pack 1-3	$25@
Microsoft Flight Simulator 4.0	$38
Microsoft Word 2.0 for Windows	$125
Lotus Ami Pro 3.0 for Windows	$99
WordPerfect for Windows 5.2 (NEW!)	$115
PFS: Windows Work	$65
BitFax for Windows w/OCR & BitCom	$99
MultiMedia Upgrade Kit (CD-ROM,CDs,Sound Blaster Pro,Midi........)	$565
SONY Internal CD-ROM w/controller	$295
Toshiba internal 3401 CD-ROM SCSI II	$479

Miscellaneous

Logitech Serial/Bus MouseMan & TrackMan 2	$65/$75
Logitech Scanman 256 w/OCR 400DPI	$299
Microsoft serial mouse	$69
KeyTronic 101+ enhanced keyboard	$45
Maxiswitch 101 enhanced keyboard	$39
Northgate Omni 101/102 enhanced keyboard	$75
Northgate Omni Ultra 118 key enhanced keyboard	$95
Zoltrix 14.4K/14.4K Fax Modem w/Bitcom & Bitfax	$199
Zoltrix 2400/9600 Fax Modem w/MNP5 & BitFax for Win	$59
Zoltrix 2400 Baud Internal Modem	$40
TEAC/TEAC 1.2MB1.44MB Floppy Drive	$58/54
Sound Blaster Mono/Pro Basic Sound Card	$95/159
Motherboards & CPUs (286, 386, 486, EISA, Local Bus)	Call
Hard Drives (IDE, SCSI, ESDI)	Call
SIMM, SIPP, & DIP DRAMs	Call
Dot Matrix Printers, LaserJet Laser Printer & Memory	Call

Ask for Upgrade Option on *USA* Made AMI, Micronics, Mylex, Nice, Orchid ... Systems

AiM *Computers*

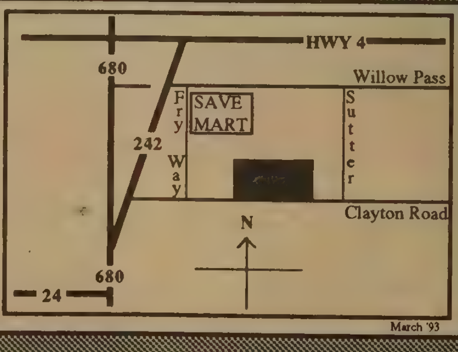
1741-C Clayton Road, Concord, CA 94520
TEL: (510) 687-2822
FAX: (510) 687-5276
Hours: M-F 10-6:30
Sat 10-5

AiM Quality Guarantee

*** 5 Years Labor & 1 Year Parts**
*** 72 Hours Burn-In**

Prices subject to change without notice
Not responsible for typographical errors
Trademarks are registered by the respective companies
Contents subject to change without notice
** Upon credit approval, see store for detail

100% Financing & Leasing Available



March '93

SCHWAB SYSTEMS

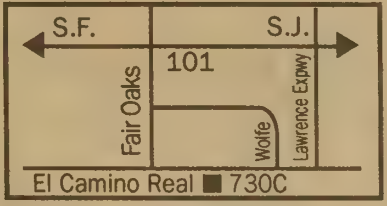
SINCE 1987

SCHWAB COMPUTER

730 EAST EL CAMINO REAL, SUITE C • SUNNYVALE, CA. 94087 • HOURS: M-F 9-6 SAT 11-4

YOUR ULTIMATE SOURCE OF HIGH PERFORMANCE SYSTEMS AND GRAPHICS PRODUCTS!

TEL: (408) 245-6666 • FAX: (408) 245-3103



i486DX-50/DX2-66 EISA VESA LOCAL BUS

- 80486DX50/DX2-66 MHz CPU
- 256K Cache Up to 512K
- 1 MB RAM Up to 256 MB
- 2S/1P/1G Ports
- 1.2 MB Floppy Drive
- 101 Keyboard
- Mini-Tower Case

$1750/1850

i486DX-50/DX2-66 ISA VESA LOCAL BUS

- 80486DX50/DX2-66 MHz CPU
- 128K Cache Up to 256K
- 1 MB RAM Up to 64 MB
- 2S/1P/1G Ports
- 1.2 MB Floppy Drive
- 101 Keyboard
- Mini-Tower Case

$899/999

i486DX-50/DX2-66 ISA BUS

- 80486DX50/DX2-66 MHz CPU
- 64K Cache Up to 256K
- 1 MB RAM Up to 64 MB
- 2S/1P/1G Ports
- 1.2 MB Floppy Drive
- 101 Keyboard
- Mini-Tower Case

$850/950

ORCHID ISA VESA LOCAL BUS SUPER SYSTEM 486DX-50 MHZ

- ORCHID 486 VESA Super Board
- 80486DX-50 MHz CPU
- 256K Cache
- Orchid VESA IDE LB Controller
- Orchid VESA VA LB SVGA

ORCHID **$CALL**

UPGRADE YOUR 286 !!

- 80386SX-33 MHz
- 2 MB RAM
- Capable of Windows Applications

ONLY $155

GRAPHICS DISPLAYS

IDEK MF5217, 1024x768 NI, 72 Hz, 0.28mm, 17"	$899
IDEK MF8317, 1280x1024 NI, 72 Hz, 0.26mm, 17"	1099
IDEK MF5421, 1600x1200 NI, 72 Hz, 0.28mm, 21"	2380
MAG MX15F,1280x1024 NI, 72 Hz, 0.28mm, 15"	579
MAG MX17F,1280x1024 NI, 72 Hz, 0.28mm, 17"	1080
NANAO F550i, 1024x768 NI, 72 Hz, 0.28mm, 17"	1080
NANAO F560i, 1280x1024 NI, Trinitron, 0.26mm, 17"	1580
NANAO F750i, 1024x768 NI, 72 Hz, 0.31mm, 21mm, 21"	2050
HITACHI CM2085, 1280x1024 NI, 72 Hz, 0.31mm, 20"	1400
HITACHI CM2187, 1600x1280 NI, 72 Hz, 0.31mm, 21"	2195
SONY CPD1304S, 1024x768 NI, 60 Hz, 0.26mm, 14"	575
SONY CPD1430, 1024x768 NI, 60 Hz, 0.26mm, 14"	595
SONY CPD1604S, 1024x768 NI, 70 Hz, 0.26mm, 17"	1050
SONY GDM1936, 1280x1024 NI, 70Hz Trinitron 20"	2095
SEIKO 1450,1024x768 NI, Trinitron, 14"	495
TOSHIBA P21CR00,1280x1024 NI, 72 Hz MPRII, 0.31mm 21"	1995
NEC 3FG/4FG/5FG/6FG	CALL
VIEWSONIC 4E/5E/6E/7/8	CALL
SIGMA DESIGN DUAL PAGE MONO VGA Hi-Res	CALL

GRAPHICS ADAPTERS

ATI Graphics Ultra Accel SVGA 1280x1024, 1 MB	$325
ATI Graphics Ultra + 1024x768 16K C, 1 MB	325
ATI Graphics Ultra Pro Local Bus w/2 MB	495
DIAMOND Speedstar 24, 1 MB	140
DIAMOND Speedstar 24X, 1 MB	175
DIAMOND Stealth 24 ISA S-3 801, 1 MB	190
DIAMOND Stealth 24 VLB S-3 805, 1 MB	225
DIAMOND Stealth Viper VLB (Weitek 9000) 1/2 MB	385/485
#9GXE S-3 928 Accel, 1 MB VRAM, Level 10	399
#9GXE S-3 928 Accel, 2 MB VRAM, Level 11	585
#9GXE S-3 928 Accel, 2 MB VRAM, 1 MB DRAM, Level 12	735
ORCHID Pro Designer IIs, 1 MB	CALL
ORCHID Fahrenheit 1280°, 1 MB VRAM	205
ORCHID Fahrenheit VA VESA LB, 1 MB	189
AIR Star 2000 (Weitek 9000) 2 MB VRAM	550
HERCULES TI34010 Graphics Station	CALL
METHEUS VGA/1104+/Premier	CALL
NATIONAL DESIGN Volante AT Series	CALL
#9GXI Level 23-29 Series	CALL
VERMONT MICROSYS X/Series/Cobra	CALL
VIDEO SEVEN VEGA/VRAM/WIN. VGA	CALL

DIGITIZERS

CALL FOR CALCOMP, KURTA, SUMMAGRAPHICS & MICROGRID

PLOTTERS

CALL FOR HOUSTON INSTRUMENTS, ENCAD & ROLAND

MOTHERBOARDS

ISA

486DX 66/50/33	CALL
386DX 40/33	$110
386SX 33/25 CPU	110/105

VESA LOCAL BUS

486DX 50/33	$225

EISA VESA LOCAL BUS

486DX 66/50/33	$495

HARD & FLOPPY DRIVES

MAXTOR

130MB IDE	$270
200MB IDE	375
340MB IDE	625
130MB SCSI	325
200MB SCSI	425
340MB SCSI	675
676MB SCSI	1195
1.2GB SCSI	1555
1.7GB SCSI	1995

FUJITSU

525MB SCSI	$1095
1.2GB SCSI	1689

WESTERN DIGITAL

340 MB IDE	$595

SYDOS

Puma 88 Ext	$499

FLOPPY DRIVES

1.2MB/1.44MB	$56/55
Dual 1.2/1.44MB	149

PLUS DEVELOPMENT

Hard Card 50MB	$249
Hard Card 105MB	399

MONITOR

14" .39 (1024)	$225
14" .28 1024/NI	270/325
12" Mono	75
14" Flat Screen Mono	95

OTHERS

Surge Protector	$18
Mouse Pad	3

VIDEO CARDS

SVGA 512K (1024)	$36
SVGA 1MB (1024)	56

TAPE BACK-UP

COLORADO

DJ10 (120MB)	$189
DJ20 (250MB)	255
AB-11	45
FC-10	95
TC-15 Controller	195
QFA 700MB	725
TC-02 (required)	259

CASES

Baby AT w/200W	$79
Baby Tower w/200W	85
Mid Tower w/230W	105
Full Tower w/250W	138
Slim Case w/200W	95

KEYBOARD

NORTHGATE

101 Omni	$68
Ultra	94

FOCUS

2001 101 Click	$45
5001 130 Key w/ac	64

OTHERS

Maxi 101	$35
Keytronics 101	45
BTC101	29
Lite On 101	32

PRINTERS

PANASONIC

1180i/1123	$158/199
1124i/1624	285/349
2123/2124i	239/319
2180/2624	169/375

CITIZEN

GSX 200/130	$165/205
GSX 140/145	269/355
GSX 240	329

MOUSE

Microsoft Ser/Bus	$89
Logitech Mouseman	64
Logitech First	35
Logitech Trackman	69
Microspeed Track Bus	99
Microspeed Serial	83
3-Button Mouse	14

NETWORK

ARTISOFT

AE-2 Starter Kit/Win	$485
AE-3 Starter Kit/Win	565
Articom	232
Central Station	379
AE-2 Ethernet Adapter	199
AE-3 Ethernet Adapter	235
AE-2/T 16 Bit 10BT	210
AE-1/T 8 Bit 10BT	135
2Mbps Adapter	145

3COM

3C503/TP	$195/215
3C507/TP	279/299
3C509/TP	139/139

SMC (Authorized Dealer)

8 Bit Elite Plus	$129
16 Bit Elite Plus	155
16 Bit TP Elite Plus	169
Full Line Of SMC	CALL

NOVELL (Authorized Dealer)

NE1000	$110
NE2000	165
NE2000TP	175
NE3200	670
Netware 2.2	
5 User/10 User	479/1079
Netware 2.11	
5 User/10 User	615/1299
20 User/50 User	1920/2799
100 User/250 User	3825/6825

CONTROLLER & I/O

ADAPTEC

1522K	$159
1542B	269
1640	330
1742 EISA SCSI	439

MYLEX

DCE 376 EISA SCSI	$599

ULTRASTORE

15C IDE Cache	$239
14F SCSI	239
24F SCSI EISA	450

OTHERS

IDE w/2S/P/G	$18
2S/P/G	15

MODEM

ZOLTRIX

2400 Int w/MNP5	$45
96/24 SR/Fax w/MNP5	70
9600/14400 Fax/Modem Int	279
9600/14400 Fax/Modem Ext	319
9600 Int/Ext w/Bitcom	229/239

INTEL

Satisfaction 100 Int	$105
Satisfaction 200 Int	299
Satisfaction 400 Int/Ext	435/499

ZOOM

96/24 Fax Int/Ext	$95/115
144/144 Fax Int/Ext	299/329

■ WE OFFER LIFETIME FREE TECHNICAL SUPPORT WITH EVERY SCHWAB SYSTEM SOLD PLUS ONE YEAR PARTS AND LABOR WARRANTY.

■ PRICES AND AVAILABILITY AND SPECIFICATIONS ARE SUBJECT TO CHANGE W/O NOTICE ■ NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS ■ GOVERNMENT, UNIVERSITY AND QUALIFIED FIRMS PO ACCEPTED

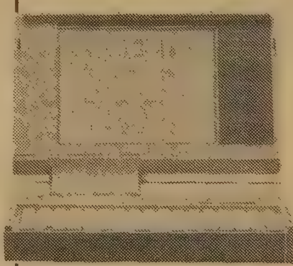
VESA 2 LOCAL BUS 486-66DX2 128K CACHE SYSTEM $948 Motherboard Only $768	VESA 2 LOCAL BUS 486-50DX 128K CACHE SYSTEM $828 Motherboard Only $638	VESA 2 LOCAL BUS 486-50DX2 128K CACHE SYSTEM $798 Motherboard Only $608	VESA 2 LOCAL BUS 486-33 128K CACHE SYSTEM $668 Motherboard Only $488	EISA 3 LOCAL BUS 486-66DX2 256K CACHE SYSTEM $1238 Motherboard Only $1058	EISA 3 LOCAL BUS 486-50DX 256K CACHE SYSTEM $1158 Motherboard Only $978	EISA 3 LOCAL BUS 486-50DX2 256K CACHE SYSTEM $1088 Motherboard Only $918	EISA 3 LOCAL BUS 486-33 256K CACHE SYSTEM $968 Motherboard Only $788
486-66DX2 128K CACHE SYSTEM $898 Motherboard Only $718	486-50DX 128K CACHE SYSTEM $788 Motherboard Only $598	486-50DX2 128K CACHE SYSTEM $758 Motherboard Only $578	486-33 128K CACHE SYSTEM $628 Motherboard Only $448	486-25SX 128K CACHE SYSTEM $458 Motherboard Only $265	386-40 SYSTEM $368 Motherboard Only $175	386-33 SYSTEM $363 Motherboard Only $170	386-33SX SYSTEM $298 Motherboard Only $105

BASIC SYSTEM CONFIGURATION:

- 1 MB RAM Expandable
- IDE 2FD/2HD Controller
- 101 Key Mitsumi Keyboard
- Teac 1.2 or 1.44 MB Floppy Drive
- 2 Serial, 1 Parallel, 1 Game Ports
- Mini-Desk Top or Tower Case
- Power Supply
- One Year Warranty

LIFETIME LABOR WARRANTY ON SYSTEM

386-25SX & 486-SLC-25 NOTEBOOK



- 2 MB RAM
- 1.44 MB 3.5″ FDD
- 81 Key Keyboard
- MS DOS 5.0
- 2.5 Hour Ni-Cad Rechargeable Battery
- External Keyboard/VGA Ports

OPTIONS:

• 24/96 Fax/Modem	$125
• 2 MB Upgrade	$125
• 4 MB Upgrade	$245

H.D.	386-25SX	486-SLC 25
60 MB	$1135	N/A
80 MB	$1195	$1485
120 MB	$1325	$1615
200 MB	$1575	$1925

VIDEO CARDS

ATI Ultra VLB 2MB	$459
ATI Ultra Pro 2MB	449
ATI Ultra Graphics Plus 2MB	329
Diamond Stealth 24	$162
Diamond Speedstar-24X Windows Accelerator	
1280x1024 1 MB 16 Million Colors	158
Diamond Stealth 24 VLB (S3 Chip)	165
Diamond Stealth Pro (VRAM) 1/2MB	269/379
ORCHID FAHRENHEIT DRAM	$155
ORCHID FAHRENHEIT VESA LOCAL BUS	175
GENOA VESA LOCAL BUS	135
ET 4000 OEM VGA	85
TRIDENT VGA (1024x768) 1 MB	$58
Accumos VGA 800x600/256K	$28
Accumos 1024x768/512K	39
GENERIC Monochrome Graphics w/Printer Port	17

DRIVE CONTROLLERS

Hard disk controller XT	$48
MFM Contrl (1:1 Inter)	55
DTC 3280 SCSI	95
DTC 2270 VLB w/ I/O	95
DTC 2290 EISA IDE FD/HD	145
IDE Controller	20
IDE Controller/4 Floppy	35
IDE Controller w/2S/1P/1G	25
IDE I/O VLB	75
Adaptec SCSI 1542 B/w/Software	219/259
Adaptec SCSI 1742A EISA w/Floppy	425
Adaptec SCSI 1742A EISA w/Floppy & Software	458
Adaptec SCSI 1542 Plus w/tape Back-up & CD ROM Drivers	329
Ultrastor VLB SCSI II 32K Cache	295

I/O CARDS

AT I/O (2S 16550/1P/1G)	$42
RS-232 card	17
AT-I/O (2S/1P/1G)	20
Printer Card	14
Game Card	14

MONITORS

NANAO F550i 17″	$1125
T560i 17″	1705
T660i 20″	2595
KFC 17″ Flat Screen .26	905
STANDARD 17″ .31	650
VIEW SONIC V8	1595
V7 17″ Flat Screen (72Hz Non-Int)	995
V6E Non-Int 14″	355
V5E	415
V6FS 15″	575
V4E 1024x768 VGA 14″	315
EYEQ 1024x768 VGA .28/NI	268/305
SVGA 1024x768 .39	225
TOUCH NI 1024x768	289
STANDARD TECHNOLOGIES 1024x768 .28 w/Oversizing	275
VGA Mono	109
NEC 4FG	748
3FGX	648
14″ Flat Screen Mono (Amber or Paper White)	95
SONY 1304 Non-Int (1024x768) 14″	565
1604S 16″	995
1936 20″	2095

KEYBOARDS

MaxiSwitch ProKey 124 Keys Programmable	$79
Keytronic 101	39
Mitsumi 101	33
Chicony 5161 101 Keyboard (clicking)	39
MAXISWITCH 101 Keyboard	39
Omni 102/Ultra	69/95
Black 101 Keyboard	39

MODEMS & FAX MODEMS

ZOLTRIX 2400 Internal Modem	$35
24/96 Fax Modem (Send/Receive)	58
14400 Fax Modem V.42 Int/Ext	215/240

DISK DRIVES

TEAC 1.2 MB	$57
3.5″ (1.44 MB)	55
1.2, 1.44 MB Combo Drive	139
MAXTOR	
130 MB 15ms (64K Cache)	239
7213A 213 MB	329
7245A 240 MB	349
LXT 340S (SCSI II)	589
LXT-340A	579
LXT-535A 535 MB	899
1.2 Gigabyte 13ms	1269
1.7 Gigabyte 13ms	1539
CONNER 40 MB	139
80 MB	189
120 MB 19ms	239
170 MB 17ms	259
213 MB 12ms	329
250 MB	349
540 MB	889
TOSHIBA	
877 MB SCSI II 3.5″	1079
1.2 GB SCSI II 3.5″	1498

NETWORK CARDS

Ethernet 8 Bit	$85
Ethernet 16 Bit	95
Arcnet Star/Bus 8 Bit	49
10 BT Ethernet 16/8 Bit	105/95

TAPE BACK-UP

COLORADO Tape Back-Up 120 MB	$159
Tape Back-Up 250 MB	215
DC-2120 Tape Cartridge For Above	19
COLORADO Drive External Kit	109
COLORADO Trakker 250 MB	CALL

HIGH QUALITY MAIN BOARDS

486-66 MHz w/CPU w/128/256K Cache	$755/768
486-50 MHz w/CPU w/256K	659
486-50 MHz DX2 128K Cache	610
486-33 MHz w/CPU w/128K Cache	478
486-25SX w/CPU w/Cache	295
386-40 (64K Cache) w/CPU	175
386-33C (64K Cache) w/CPU	170
386-33SX	105
386-25SX	95

COMPUTER CASE

14″ Baby AT Case w/200W P/S	$79
17″ Baby AT Case w/200W P/S	89
Vertical Case 250 W P/S	139
Medium Vertical Case 250 W P/S	115
Mini Vertical Case 200 W P/S	79
Sleek Black Case	CALL

LOGITECH PRODUCTS

Logitech Trackman Combo	$79
Logitech Trackman Portable	95
Logitech Model 256 Scanman	249
Model 256 w/OCR Software	299
Logitech Bus Mouseman	64
Logitech Mouseman Combo	64
First Mouse	37
Mouse (Serial 9 Pin)	12
Windows 3.1 w/Logitech Dexxa Mouse	65
Microsoft Mouse Bus/Ser (400dpi)	85/75
Trackball	28

PRINTERS

Panasonic KXP-1624 132 Column	$355
KXP-1123	209
KXP-1124i	295

MISC.

Windows 3.1	$45
MS DOS 5.0	45
6/10/15/25′ printer cable	3.50/6/10/20
Keyboard Extension cable	5
Monitor Extension cable	5
Keyboard Drawer/Under Table	27/18
Computer floor stand	7^{95}
Power Center	18
Printer switch box (AB/ABCD)	9^{50}/19
Power supply 150/220W	38/48
Memory Chips (DIPS/SIPPS/SIMMS)	CALL
Math Co-Processors	CALL
Disk Box	7.50
Power Strip	7
Keyboard Rest	3^{50}

U.P.S.

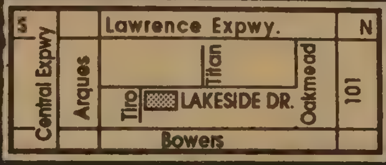
550 VA	$229

AROMA computer systems

Always Ready to Offer More Assistance

470 LAKESIDE DR. Suite F
SUNNYVALE, CA 94086
Tel: (408) 736-4355 M-F 9-7
FAX: (408) 736-4356 Sat 10-4

Prices Subject To Change w/o Notice
Prices Good At Sunnyvale Store Only
$20 surcharge for PO processing on systems



MODESTO OFFICE
3430 Tully Rd., Suite #21
Modesto, CA 95350
Tel: (209) 525-8080
FAX: (209) 525-8120

YOUR ONE STOP MULTIMEDIA SOURCE

CD-ROM

• PANASONIC 522 (AT BUS W/CONTROLLER CARD)
380MS ACCESS TIME, 150KB TRANSFER RATE

INTERNAL DRIVE	$248
EXTERNAL DRIVE	308

• PANASONIC 501 (SCSI W/CONTROLLER CARD)

INTERNAL DRIVE	$308
EXTERNAL DRIVE	368

• MITSUMI MPC CD-ROM (AT BUS W/CONTROLLER CARD)
350MS ACCESS TIME, 150KB TRANSFER RATE, PHOTO CD COMPATIBLE

INTERNAL DRIVE	$208

• TEXEL DM-3024 (SCSI)
265MS ACCESS TIME, MULTI-SPIN, FREE CADDY

INTERNAL DRIVE	$399
EXTERNAL DRIVE (DM-5024)	489

• TOSHIBA XM-3401 (SCSI)
FASTEST CD-ROM, 200MS ACCESS TIME, 330KB TRANSFER, MULTI-SPIN

INTERNAL DRIVE	$489

FREE INSTALLATION WITH ANY CD-ROM DRIVE PURCHASE!!

CD-ROM SOFTWARE TITLES

WITH DRIVE PURCHASE PRICES

BUSINESS CD-ROM TITLES

AMERICAN BUS. PHONE BOOK	$18
BUSINESS & ECONOMIC ATLAS	27
MARKETING MASTER DOS	18
PUBLISH•IT 2.0 DOS	33

ENTERTAINMENT CD-ROM TITLES

CHESSMASTER 3000 MPC.	$19
JONES IN THE FAST LANE MPC	25
KINGS QUEST V MPC	25
LOOM FROM LUCAS FILM	25
MAVIS BEACON TEACHES TYPING	25
MEDIA CLIPS 4 PACK FROM ARIS.	49
PC SIG LIBRARY 10TH EDITION	29
SECRET WEAPONS OF LUFTWAFFE	25
SHERLOCK HOLMES, CONS, DET	25
SO MUCH SHAREWARE	19
TOTAL BASEBALL	35
WHERE IN THE WORLD IS CARMEN SAN DIEGO	27
WING COMMANDER & SECRET MIS 1&2	29
CD STORYTIME DOS	16
STELLAR 7 DOS	19
MONKEY ISLAND	25
AMANDA STORIES	39
COMPOSER QUEST MPC	39
BEAUTY & BEAST	15
PETER & WOLF	19
MIXED-UP MOTHER GOOSE	19
WINWARE VOLS 1 & 2	23
AMANDA STORIES-RETAIL BOX	68
ANNABEL'S DREAMS MPC	68
ANNABEL'S DREAMS-EGYPT	59
DESERT STORM MPC	21
WING COMMANDER & ULT VI DOS	25
PC GRAPHICS & SOUND DEMO	19
SPORTS BEST	22
BATTLE CHESS	35
CD GAME PACK II	25

EDUCATIONAL CD-ROM TITLES

ANIMALS V1.0 SOFTWARE TOOL	$27
FAMILY DOCTOR	27
GUINNESS DISC OF RECORD '92	27
LIBRARY OF THE FUTURE	48
TIME MAGAZINE ALMANAC 1991	25
U.S. ATLAS WITH AUTOMAP	29
U.S. HISTORY	29
WORLD ATLAS MULTIMEDIA MPC	35
FAMILY CHOICE	27
LIBRARY OF THE FUTURE 1ST	39
NAT'L GEOGRAPHIC MAMMALS	27
WORLD VIEW	29
AUDUBON MAMMALS	58
OCEAN DIGITAL IMAGERY VI	29
ELEC LIBRARY OF ART VI	29
GREAT CITIES VOL I	21
GREAT CITIES VOL 2	21
TIME TABLE OF HISTORY	19
TOOLWORKS ENCYCLOPEDIA	59
WILD PLACES	32
MACMILLON DICT. CHILDREN	35
PRESIDENTS	128
CORP SNAPSHOT	28
USA WARS: CIVIL WAR	35
USA WARS: KOREA	35
USA WARS: WW II	35
USA WARS: VIET NAM DOS	35
FAMILY EDUCATION COLLECTIONS	23
US ATLAS	22
CIA WORLD FACT BOOK	27
HOLY BIBLE	28
SHAKESPEARE	28
SOUND LIBRARY	19
BRING THE WORLD TO YOUR SENSES	15
TOOL WORKS REFERENCE LIBRARY	25
PLAYING WITH LANGUAGE: ENGLISH	35
PLAYING WITH LANGUAGE: FRENCH	35
PLAYING WITH LANGUAGE: GERMAN	35
PLAYING WITH LANGUAGE: JAPANESE	35
PLAYING WITH LANGUAGE: SPANISH	35
GRIPS II DOS	26
VITAL SIGNS MPC	59

SHAREWARE

PC-SIG 9TH ED DOS	$17
PC-SIG 10TH ED DOS	28
SO MUCH SHAREWARE I	15
SO MUCH SHAREWARE II	19

*CALL FOR MORE INFORMATION ON SOFTWARE TITLE AVAILABILITY & PRICING

CREATIVE

CREATIVE LABS, INC.

MULTIMEDIA PRODUCTS

•VIDEO BLASTER •DISPLAY FULL-MOTION VIDEO IN A WINDOW. OVERLAY COMPUTER TEXT AND GRAPHICS ON VIDEO. •FREEZE, STORE AND MANIPULATE IMAGES FROM VCR'S OR ANY VIDEO SOURCE. •APPLICATION SOFTWARE BUNDLED INCLUDING MICROSOFT VIDEO FOR WINDOWS (RETAIL VALUE $139)	$345
•SOUND BLASTER •MIDI INPUT, GAME PORT, AD LIB COMPATIBLE	88
•SOUND BLASTER PRO BASIC •STEREO SOUND CARD	135
•SOUND BLASTER PRO •SOUND BLASTER PRO, MIDI BOX	188
•SOUND BLASTER PRO 16	265
•MULTIMEDIA STARTER KIT •SOUND BLASTER PRO CARD, CD-ROM, MPC SOFTWARE, MICROSOFT® BOOKSHELF®	438
•MULTIMEDIA UPGRADE KIT •SOUND BLASTER PRO CARD, CD-ROM, MPC SOFTWARE, MIDI KIT, 6 CD TITLES	519
•CADDY	8
•SPEAKERS •LABTEC CS-150 •BUILT-IN POWER BOOSTER "C" SIZE BATTERY NOT INCLUDED	19

• "MEDIA VISION" MUSIC CARD •PRO AUDIO SPECTRUM 16 (OEM VERSION)	$168

GRAVIS ULTRA SOUND MUSIC CARD
16 BIT, 32 VOICE, CD QUALITY SOUND $149

CD-ROM SOFTWARE TITLES

BUNDLE SPECIALS

(WITH AROMA'S MULTIMEDIA PRODUCT PURCHASE ONLY)

•LOTUS® 1-2-3 MULTIMEDIA PC	$78
•COMPTON'S PC ENCYCLOPEDIA	68
•MICROSOFT® BOOKSHELF MPC	48
•MICROSOFT WORK MPC	43

486-33 MHZ MULTIMEDIA COMPLETE SYSTEM SVGA W/CD-ROM

PACKAGE INCLUDES:

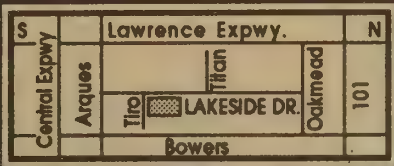
- 486-33 MHz W/128K CACHE
- INTEL 80486-33 CPU
- 4 MB RAM
- 120 MB HARD DRIVE
- PANASONIC CD-ROM MODEL 522
- MEDIA VISION MUSIC CARD SPECTRUM 16
- 1.2 OR 1.44 MB FLOPPY DRIVE
- 14" SVGA 1024x768 .28MM COLOR MONITOR
- SVGA CARD W/1 MB
- IDE CONTROLLER (2S/1P/1G)
- 101 KEYBOARD
- LABTEC CS-150 SPEAKERS

$1728

CALL FOR OTHER CONFIGURATIONS & OPTIONS

AROMA
computer systems
Always Ready to Offer More Assistance

470 LAKESIDE DR. Suite F
SUNNYVALE, CA 94086
Tel (408) 736-4355 M-F 9-7
FAX (408) 736-4356 Sat 10-4
2% surcharge for PO processing on systems
Prices Subject To Change w/o Notice
Prices Good At Sunnyvale Store Only



MODESTO OFFICE
3430 Tully Rd. Suite [illegible]
Modesto, CA 95350
Tel (209) 525-8080
FAX: (209) 525-8120

ONE YEAR WARRANTY

AMT INTERNATIONAL

3074 LANDESS AVENUE, SAN JOSE, CA 95132
(408) 942-9695 FAX (408) 942-5509

LOWEST PRICES SAME DAY SHIPPING

486-50

- 256K Cache
- 80486DX-50 Intel CPU
- AMI BIOS
- 8 MB RAM (70ns)
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 200 MB IDE Hard Disk
- IDE Controller Card
- I/O (2S/1P/1G) Card
- Orchid Pro IIS w/1 MB Card
- 14" Non-Int SVGA Monitor
- 101 Key Keyboard
- Full Tower Case w/250W Power Supply

$1949

LOCAL BUS WITH S3 CALL

486-33

- 64K Cache
- AMI BIOS
- 4 MB RAM
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 120 MB IDE Hard Disk Drive
- IDE Controller Card
- I/O (2S/1P/1G) Card
- SVGA Trident w/1 MB
- 14" SVGA .28dp Monitor
- 101 Keyboard
- Mid Tower Case
- 230W Power Supply

w/Local Bus.......$1519

$1369

386-40

- 64K Cache
- 80386DX-40 AMD CPU
- AMI BIOS
- 4 MB RAM
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 120 MB IDE Hard Disk Drive
- IDE Controller Card
- I/O (2S/1P/1G) Card
- SVGA Trident w/1 MB
- 14" SVGA .28dp Monitor
- 101 Keyboard
- Mini/Desktop Case
- 230W Power Supply

$1069

386SX-25

- AMI BIOS
- 2 MB RAM
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 80 MB IDE Hard Disk Drive
- IDE Controller Card
- I/O (2S/1P/1G) Card
- SVGA Trident w/512K
- 14" VGA Monitor
- 101 Keyboard
- Mini/Desktop Case
- 230W Power Supply

$810

MOTHERBOARDS 0K With CPU

486-50 (EISA) 33/50 MHz	CALL
486-50 Local Bus w/256K Cache	$980
486-50 w/CPU/256K Cache	595
486-33 w/CPU/128K Cache	440
386DX/486DX AMD Upgradable	230
486SX-25/20	279
386DX-40/64K Cache	169
386SX-33/25/16	119/99/79
486VL-50/33/256K Cache No CPU	175

VIDEO CARDS

Artist XJS/XJ10	CALL
Diamond SpeedStar SVGA (32K, Hi-Color)	149
Diamond Stealth VRAM w/1 MB	225
Orchid 1280 Fahrenheit w/1 MB	235
Orchid ProDesigner IIs w/1 MB	139
Genoa Hi-Speed SVGA w/1 MB	149
Oak VGA w/512K	42
Oak VGA w/1 MB	55
Trident VGA w/512K	45
Trident VGA w/1 MB	60
Tseng Lab w/1 MB	89
OTHERS	CALL

MONITORS

Monochrome 12"/14"	$75/99
Mono VGA 14"	119
14" SVGA 0.28	255
Non-Int SVGA 0.28	299
Sony 1304	589
ViewSonic 4/6/5E/7	295/399/345/1099
NEC 3FG/4FG/5FG	659/749/359
Samsung 14" VGA (.31)	265
Samsung 14" SVGA (.28)	279
Samsung 15" SVGA (.28)	475
Samsung 17" SVGA (.31)	789
OTHERS	CALL

HARD DRIVES

CONNER	44 MB IDE	$158
	89 MB IDE	215
	130 MB IDE	247
	210 MB IDE	360
	340 MB IDE	595
	520 MB IDE	890
MAXTOR	80 MB IDE	199
	130 MB IDE	239
	213 MB IDE	339
	360 MB IDE	595
	340 MB SCSI	595
	660 MB	CALL
QUANTUM	52 MB IDE	209
	120 MB IDE	319
	240 MB IDE	595
SEAGATE	40 MB IDE	165
	105 MB IDE	235
	130 MB IDE	289
	200 MB IDE	539
CDC	91.5 MB SCSI	199
FUJITSU	540 MB IDE	950

FLOPPY DRIVES

1.2 MB Teac 5.25"	$55
1.2 MB Samsung 5.25"	49
1.44 MB Teac 3.5"	49

TAPE BACK-UPS

120 MB Colorado	$189
250 MB Colorado	249
500 MB Portable	CALL

NETWORK CARDS

Ethernet 8-Bit	$89
Ethernet 16-Bit	99
14 Port 10 BaseT Hub	539
Arcnet 8-Bit	49
Arcnet 16-Bit	59

Prices Subject To Change w/o Notice
Not Responsible For Typographical Errors

KEYBOARDS

NORTH GATE/OMNI.	CALL
Keytronics 101	40
Maxiswitch 101	32
Chicony 101	30
Focus 5001 w/Calculator	65
Mitsumi 101 Key	30

MISCELLANEOUS

MS DOS 5.0	$40
Windows 3.1	45
6' Printer Cable.	5
10' Printer Cable	9
Power Supply 150/220W	39/49
Monitor/Keyboard Ext Cable 10'	7
Printer Switch (AB/ABCD)	10/20
Sound Blaster Pro	189
Sound Blaster	105
Sony CD-ROM	CALL

MICE

Logitech Serial.	$65
Logitech Scanman Model 32	149
Logitech Model 256 w/OCR	365
Microsoft Mouse	89
Logitech w/Windows 3.1	75
Windows 3.1 Upgrade	39

PRINTERS

HP LaserJet III	$1469
Epson, Panasonic, Okidata, Citizen, & Others	CALL

ADD-ON CARDS

AT IDE I/O (2SPG, HD/FDC)	$20
AT I/O (2SP, 1PP)	13
Bustek EISA SCSI	345
Apatec 1542B SCSI	245
Ultrastor ESDI	CALL
Fast SCSI w/1 MB	425
IDE w/Cache	195
IDE 4FD/2HD	32
VESA IDE Controller	80

COMPUTER CASES

Full Tower Case w/250W PS	$95
Mid Tower Case w/230W PS	79
Mini Tower Case w/200W PS.	60
Desk Top Case w/230W PS	99
Baby AT Case w/200W PS	60
Slim DeskTop Case w/200W PS	85

ONE YEAR WARRANTY

AMT INTERNATIONAL

3074 LANDESS AVE., SAN JOSE, CA 95132
(408) 942-9695 FAX (408) 942-5509

LOWEST PRICES SAME DAY SHIPPING

QUANTITY PRICING FOR DEALERS & VARS, PLEASE CALL!

MEMORY BOARDS FROM ACCULOGIC

- **RAMpAT! 16 BIT** Memory Up to 80286, 80386SX, 80386 — $90
- **RAMpAT PLUS** Memory Up to 8 MB For IBM PC, PC/XT, PC/AT, PS/2 — $125
- **SIMMply-RAM FOR PS/2 16 BIT** Memory Up to 8 MB For PS/2-50, 50Z, 60, 70, 80 — $159
- **SIMMply-RAM FOR PS/2 32 BIT** Memory Up to 32 MB For PS/2-70, 80, 90 — $169

FAX/MODEMS

FAX/MODEMS

2400 bps MODEM (INT)	$40
9624 bps FAX/MODEM (INT)	60
9600 bps MODEM (INT)	239
9624 bps FAX/MODEM (EXT)	99
9624 bps POCKET MODEM	139
96/144 V.32/V.42 BPS	220

MEMORY UPGRADES

SIMM MODULES

16Mx9-70	$605
16Mx36-70	515
1Mx36 70/80	125
4Mx9-80	125
4Mx9-70	129
4Mx9-60	139
1Mx9-10	27
1Mx9-80 (3 Chip)	30
1Mx9-70 (3 Chip)	31
1Mx9-60	32
256x9-70	10
256x9-10	8
256x9-80	9
256x9-60	14
1x9-10 (9 Chip)	27
1x9-80 (9 Chip)	33
1x9-70 (9 Chip)	34
1x9-60 (9 Chip)	35

APPLE-MAC

1Mx8-70	$30
1Mx8-10	27
1Mx8-80	29
4x8-80/70	114

256x4-70 Video ZIP	$10
256x4-70 ZIP	6
256x4-80 Static Column ZIP	6.50

DRAM

DRAM 256X4		256X4-80NS	4.00
256X4-120NS	$3.00	256X4-70NS	4.50
256X4-100NS	3.50	256X4-60NS	5.00
DRAM IMGXI		1 MGXI-80NX	3.99
1 MGXI-120NS	$3.50	1 MGXI-70NX	3.99
1 MGXI-100NX	3.00	1 MGXI-60NX	4.99
256XI-STATIC COL			
51258P-10	$1.00	1X4-80 DIPP	17
AAA 2800-08	1.59	1X4-80STT ZIPP	19
AAA 2800-07	1.75	1X4-70STT ZIPP	20
AAA 2800-60	1.85		
DRAM 64X4		**DRAM 64X1**	
41464-120	$1.50	4164-15	1.00
41464-100	1.99	4164-12	1.25
41464-80	1.99	4164-10	1.50
DRAM 256X1			
256XI-150NS	$1.25	256XI-80NS	1.50
256XI-120NS	1.50	256XI-70NS	1.95
256XI-100NS	1.25	256XI-60NS	1.75

EPROMS

2764-20/15	$3.00
27256-15/20	3.75
D27C020-200	8.00
D27C040-150	15.00

CACHE MEMORY

32x8-20	$6.00	8x8-20	4.00
32x8-15	8.00	8x8-15	4.99
64x4-20	8.50	8x8-25	4.00
64x4-15	14.00	16x4-20	3.99
64x1-20	5.99	16x4-15	4.50
64x1-15	CALL	128x8-25	37
		128x8-15	CALL

CPU CHIPS

80386DX-16	$39
80386DX-20	45
80386DX-25	75
80386DX-33	89
80386-40	89
80486DX2-50	418
80386SX-25 AMD	40
80386SX-20 INTEL	35
80486DX-25	275
80486DX-33	329
80286-20	15
80286-10 (PLCC)	6
80286-12 (PLCC)	5.75
80286-16 (PLCC)	10
80486DX-50	440
80486SX-25	195
V-20-8	6
V-20-10	10
V-30-10	12

MATH CO-PROCESSOR

INTEL	
8087-5 MHz	$29
8087-2 8 MHz	59
8087-1 10 MHz	89
80287-6 6 MHz	30
80287-8 8 MHz	32
80287XL 8/10 MHz	59
8028XLT 12 MHz (Laptop)	49
80287-10 10 MHz	49
80C287-12 12 MHz	39
80387SX-16	49
80387SX 20/25	79
80387DX-20	35
80387DX-25	59
80387DX-33	89
WEITEK	
3167-20 20 MHz	$25
3167-25 25 MHz	135
3167-33 33 MHz	240
4167-25 MHz	325
4167-33 MHz	595
CYRIX	
82S87XL	$59
83087-16	59
83D87-25	75
83D87-33	79
83D67-40	85
83S87-16SX	65
83X87-20/25SX	67
83S870-33	79
IIT	
2C87-8	$40
2C87-10	39
2C87-12	49
2C87-20	49
3C87-20 DX	79
3C87-25 DX	69
3C87-33 DX	69
3C87-40 DX	89
3S87-16SX	55
3S87-20SX	59
3S87-25SX	68
3S87-33SX	70

ULSI

US 83C87DX-25	$59
US 83C87DX-33	69
US 83C87DX-40	79
US 83C87SX-16/20	58
US 83C87SX-25	68
US 83C87SX-33	69

CHIPS & TECHNOLOGY

387DX-25	$69
387DX-40 TUBE	59

CYRIX TYPE

83D87DX-33 Tube	$65
83D87DX-40 Tube	72
80486 DLC-33	139

APPLE MACINTOSH MEMORY

Mac SE; SE/30; II; IIcx; IIx; IIci; IIsi	
1 MB Memory Kit	$65
4 MB Memory Kit	160
Mac IIsi	
M0514-3LL-A 8 MB Kit	305
Mac IIci; IIsi	
16 MB Memory Kit (IIci requires MAXIMA)	825
Mac IIfx	
M0376LL-A 4 MB Kit	185
16 MB Kit (requires MAXIMA)	825
Mac Classic	
M3631LL-A 1 MB Exp Brd	90
Mac Portable	
1 MB Card (True Static)	235
2 MB Card (True Static)	380
3 MB Card (True Static)	500
4 MB Card (True Static)	550
Powerbook 100: 140: 170	
2 MB Module	170
4 MB Module	295
6 MB Module	400

IBM PS/2 MEMORY

Mdl 30/386; Exp Brd 1497259	
30F5348 512K Kit	$54
30F5360 2 MB Kit	95
Mdls 70-061; -121; 55SX; 65SX; Exp Brd 6450605; 6450609; 34F3077; 34F3011	
6450603 1 MB Module	69
Mdls 70-061; -E61; -121; 50Z; 55LS; 65LS; 55SX; 65SX; P70; Exp Brd 6450605; 6450609; 34F30xx	
6450604 2 MB Module	100
Mdls 70-A21; -A61; -B21; -B61	
6450608 2 MB Module	99
Mdls 55SX; 65SX; 55LS; 65LS	
34F2933 4 MB Module	149
Mdl 80-041	
6450375 1 MB Card	75
Mdls 80-111; -121; -311; -321	
6450379 2 MB Card	99
Mdls 80-A21; -A31	
6451060 4 MB Card	225
Mdls 90; -95	
6450902 2 MB Module	160
6450128 4 MB Module	265
Mdls 50 & 60	
6450609 2-14 MB Exp Brd	280
Mdls 70 & 80	
6450605 2-8 MB Exp Brd	350
34F3011 4-16 MB Exp Brd	475
Adapter 6450367	
6450372 2 MB Module	285
PS/1 Home System	
1057035 512K Upgrade	75
92F99352 2 MB Upgrade	105
92F96944 MB Upgrade	175

LASER PRINTERS MEMORY

HP II & IID; CANON LBP-811 & LBP-811R; OLIVETTI PG 108 & PG 208	
1 MB Board	$69
2 MB Board	99
4 MB Board	175
HP IIP; III; IIID	
1 MB Board	69
2 MB Board	99
4 MB Board	175
IBM 4019 & 4019e	
1039136 1 MB Board	105
1039137 2 MB Board	140
1038675 3.5 MB Board	305
IBM 4029e	
1 MB	75
2 MB	99
4 MB	175
TI MicroLaser & MicroLaser PS	
1 MB Module	85
Panasonic KX-P4420; KX-P4450I	
1 MB Board	135
2 MB Board	160
4 MB Board	260
Epson EPL-6000; Toshiba PageLaser 6; Packard Bell PP9500; Facit P6060; Mannesmann Tally 905; AT&T 593 Laser; NCR 6435 Laser	
1 MB Board	155
2 MB Board	160
4 MB Board	260

NEC MEMORY

POWERMATE SX PLUS	
1-2 MB W/1 APC-H850E	$175
4-8 MB W/4 APC-H52E	495
POWERMATE 386/25	
2 MB APC-H655X	320
8 MB APC-H656X	750
POWERMATE	
2 MB KIT OP-410-5201	140
4 MB KIT OP-410-5202	350
PROSPEED	
286, 386SX 16 MB PC21-21, 1 MB	190
386SX16 PC21-22, 4 MB	350
386SX 20 1 MB	275
386 PC 21-21 2 MB	489

SUN MICROSYSTEMS

Mdls 3/60; 3/80; 386I/150x; 4/60; 4/65; 4/330; 4/370; 4/390; SPARC 1	
4 MB Memory Kit	$299
Mdls 4/110; 386I/250	
X116D 16 MB Kit	850
Mdls 4/60; 4/65; 4/330; 4/370; 4/390	
X116H 16 MB Kit	850
Mdls 4/330; 4/370	
X108E 8 MB Kit	499
Mdl SPARC SLC	
X105Z 4 MB Module	250
SUN 3/100's series	
4-24 MB Exp Brd	950
SUN 3/200's; 4/200's; 3/400's series	
8-32 MB Exp Brd	1750
Mdl 3/50	
4-8 MB Exp Brd	769
Mdls 4/330	
8-64 MB Exp Brd	2699

AST RESEARCH MEMORY

Premium II 386/SX20; 386/33T; 486	
500780-003 1 MB Module	$75
500780-004 4 MB Module	225
Premium 386/33; -25; SX/16; 486/33; 25T; 25; 25E	
Cupid Exp Brd 500722-004	
500718-002 1 MB Module	60
Premium 386/25; SX/16	
500718-001 1 MB Module	75
Premium 386C; 386/16; Advance FASTRAM; FASTboard 386	
500510-007 1 MB Kit	95
500510-008 4 MB Kit	225
Premium 386	
500510-003 1 MB Kit (static)	75
500510-004 4 MB Kit (static)	185
Cupid Exp Brd for Premium 386/25; 386/33; 486's	
500722-004 1-16 MB Exp Brd	425
Premium Exec Notebook 386SX20	
1 MB Module	99
4 MB Module	210

ZENITH DATA SYSTEMS MEMORY

Mdl Z-386SX	
Z-605-1 2 MB Kit	$125
Mdls Z-386/33E; 33; 25; 20	
ZA-3800-ME 1 MB Module	90
ZA-3800-MK 4 MB Module	205
SuperSport SX	
ZA-180-64 2 MB Card	199
ZA-180-86 2 MB Card (ALPHA)	199
ZA-180-87 2 MB Card (BETA)	199
SuperSport 286; 286E	
ZA-180-66 1 MB Card	185
SuperSport 286E	
ZA-180-64 2 MB Card	199
Turbosport 386E	
ZA-3034-ME 1 MB Card	199
4 MB Memory Card	495

MICRO-PROCESSOR

68020	16 MHz	$129
	20 MHz	169
	25 MHz	179
	33 MHz	199
68030	16 MHz	129
	25 MHz	199
68010	16 MHz	60

QUME LASER MEMORY

QS 410	
1 MB	$99
2 MB	125
3 MB	150
4 MB	180

COMPAQ MEMORY

DeskPro 386/20e; 20; 35e, 25; 286e	
113131-001 1MB Module	$99
113132-001 4MB Module	199
DeskPro 386/20e; 25e	
113644-001 1-9MB Exp Brd	150
113645-001 4-12MB Exp Brd	275
DeskPro 386s-16	
113646-001 1MB Module	99
112534-001 4MB Module	199
113633-001 1-9MB Exp Brd	160
113634-001 4-12MB Exp Brd	260
DeskPro 286N; 386N; 386SX/20	
118688-001 2MB Module	85
118690-001 4MB Module	180
DeskPro 386N; 386SX/20	
118689-001 2MB Module	120
DeskPro 286N; 386N	
118700-001 0-4MB Exp Brd	175
DeskPro 386/33L; 486/25; 486/33L; SystemPro	
115144-001 2MB Module	150
116561-001 8MB Module	350
116568-001 32MB Module	2100
DeskPro 386/16	
108071-001 1MB Kit	99
108069-001 1MB Exp Brd	230
108069-002 2MB Exp Brd	325
108070-001 4MB Exp Brd	460
108070-002 8MB Exp Brd	745
Portable 386	
107651-001 1MB Kit	199
107653-001 4MB Exp Brd	325
107654-001 4MB Exp Brd	325
Portable LTE/286	
117081-001 1MB Module	99
117081-002 2MB Module	150
117081-003 4MB Module	450
Portable SLT/286	
110235-001 1MB Module	175
110237-001 4MB Module	375
Portable SLT/386	
118303-001 1MB Module	125
118304-001 2MB Module	199
118305-001 4MB Module	325
Portable III	
107331-001 512K Kit	55
107332-001 2MB Kit	145

TOSHIBA PORTABLE MEMORY

T1200XE 2 MB CARD	$99
T1600 2 MB CARD	99
T3100SX 2 MB CARD	99
4 MB CARD	195
T3100e 2 MB CARD	99
T3200SX 2 MB CARD	99
4 MB CARD	195
T3200 3 MB CARD	199
T1000SE; XE 1 MB CARD	110
2 MB CARD	99
T5100 2 MB CARD	99
T5200; T8500 2 MB CARD	110

HP PERSONAL SYSTEM MEMORY

VECTRA 486 PC (must install in pairs)	
D2150A 1 MB Module	$75
D2152A 8 MB Module	450
VECTRA 386/25 PC	
D2381A 2 MB Module	150
D2152A 8 MB Module	475
VECTRA QS/20PC, RS/25PC; RS/20PC; QS/16S	
D1640A 1 MB Kit	65
D1642A 4 MB Kit	185
Apollo DN2500 1 MB Module	89
Apollo DN3010A; 3500; 3550; 4000; 4500 2-8 MB Exp Brd	609

CANON MEMORY

FOR CANON LBP-4	
1 MB	$85
2 MB	99
FOR CANON LBP-8111	
1 MB	99
2 MB	125
3 MB	185
1 MB UPGRADE BRD LBP-8111	135
2 MB UPGRADE BRD LBP-8111	145

Terms and Conditions

1. AMT will meet or beat any advertised price.
2. Full five year warranty with all AMT upgrades.
3. Gov't, University, and qualified firms Purchase Order Accepted.
4. U.S. and Internalonal shipping via UPS, DHL and Federal Express.
5. All sales must include sales tax.
6. All sales must be C.O.D. cashier/certified checks.
7. There is a 15% restocking charge for all refused merchandise.
8. Prices subject to change without notice.

HOURS: Mon.-Fri. 8am-6pm Saturday 9am-3pm

SHOPPING FOR COMPUTER PRODUCTS?

Lowest Prices Guaranteed

FAX FOR A QUOTE 415 474-1898

Can't find a product in this magazine?

Use this form and let our staff shop for you! We will find the product you need and give you a quote on cost and availability in less than 24hrs or one work day! It's free, fast and easy.

Directions

- * Please fill in all information requested. Remember to include your fax, phone number and/or address, so the information you request can be returned to you.
- * Remove this FAX-FOR-A-QUOTE form from the catalog.
- * Fax this completed form to 415/474-1898 **PLEASE DO NOT USE A COVER SHEET**
- * The staff at Tital Systems will utilize it's vast network of computer sources to not only find your paticular product, but also provide you with the very best pricing possible. If you want the product you'll be able to order it just like you would order any other product from us.

At Tital we're committed to being the single best source for all your computer needs!
NOTE: If you do not have a fax give us call at 415/ 474-1977.

NAME________________ Title________________

Company Name________________ PHONE__(___)________

Address________________ FAX____(___)________

City________________ State________ Zip________

I'd like to receive my quote via:
☐ FAX ☐ PHONE ☐ MAIL

Product information: Fill in specifications, quantity and brand preference (if any) for each product you are intrested in purchasing.

	Brand	Qty.	Hard Drive	Ram	Monitor
486/50	Any	2	80MB	4MB	SVGA
486/33	AST	1	60MB	2MB	256 Gray Scale

EXAMPLE

Desktop Computers

	Brand	Qty	Hard Drive	RAM	Monitor
486/50					
486/33					
486/SX					
386/33					
386/SX					

Peripherals (Printers, Scanners, Modems, CD-ROM, etc.)
&
Software (Manufacturer, Title, Qty.)

____

____

____

Laptop/Notebook Computers

	Brand	Qty	Hard Drive	RAM
486				
386				

We've Got It All:

Notebook Computers
Desktop Computers
Printers, Peripherals,
Modems, Monitors,
Specialty Products

Issue Special

Twinhead 486 Slim Notebook

4MB RAM
130MB Hard Drive
DOS, Windows Included

$2250

Limited Quantities

New Horizons
A Division of TTC
COMPUTER LEARNING CENTER

Call For 486 Demo Pricing
Corporate Purchase Orders Welcome

TSI

TITAL SYSTEMS, INC.

TITAL SYSTEMS

2250 Union Street, SF, CA
For more information Call:
415-474-1977

Computer Spies

The Lessons Of Borland Vs. Symantec

BY MITCHELL KAPOR

Can a company lawfully eavesdrop on its employees' telephone calls? Not if they have an expectation of privacy. But, at least in most states, the employer can monitor conversations if it tells the workers that that's what it's going to do.

That old legal issue surfaces in a new technological context in Silicon Valley, with disturbing consequences for your ability to defend key information assets. Take a look at how Borland International, a company that should know better after almost a decade on the leading edge of technology, may have hurt itself in a case involving an apparent theft of trade secrets.

The allegations in the tangled legal affair are by now well known. On September 1, 1992, Eugene Wang, a vice president of Borland's computer languages division, abruptly jumped ship to join competitor Symantec Corp.

A pattern of suspicious behavior in Wang's final days suggested that perhaps he had traded Borland secrets along with his job. Borland had no proof, but it knew where to look. Borland executives opened Wang's MCI Mail account, where they found, they said, a number of messages that they believe prove Wang delivered Borland product plans, memos and other sensitive documents to Symantec. The evidence thus uncovered led to police searches of Wang's and Symantec Chief Executive Gordon Eubanks' homes and Symantec offices, to a pending criminal investigation of Wang and Eubanks and to a civil suit by Borland against Symantec.

What has been scarcely addressed in newspaper coverage of these events is what this case means to the rapidly growing business of electronic mail.

THE ECPA

Let's back up and consider the law that protects electronic mail users, the federal Electronic Communications Privacy Act of 1986. The privacy act protects messages while in transmission on a public mail service such as MCI, as well as after messages are received and stored on that service.

Borland and its attorneys, in a hurry to prove their suspicions about Wang, justified their intrusion into the mailbox as a property right: Borland was paying the bills for Wang's MCI account. "Email is like an in-box on someone's desk," says Borland spokesman Steven Grady in defense of the search. "When they leave, it reverts to the corporation."

Case closed? Not quite. Borland's metaphors fall apart when tested against the realities of electronic mail. Unlike in-boxes on an abandoned desk, email requires a password, and it can be administered by a wholly separate communications company, like MCI. As it stands, in a criminal case Wang could challenge the legality of all the evidence collected on the basis of the messages found in his MCI account. He may also have grounds for a countersuit under the electronic privacy act and California law, which goes further in protecting individual privacy.

> **As it stands, in a criminal case Wang could challenge the legality of all the evidence collected on the basis of the messages found in his MCI account.**

It's easy to understand the anger Borland executives felt in discovering an apparent information hemorrhage. But the methods employed by Borland, which likes to flaunt its "barbarian" ways, may have been a little too barbarian by the standards of the federal statute. The one thing for sure is that all parties will be involved in a lengthy and expensive court battle to sort this out. The final result may be a draw between Borland and Symantec, and a new definition of privacy for the rest of corporate America.

Copyright ©1993 by Mitchell KaporThis article originally appeared in the November 9, 1992 issue of Forbes, *and is reprinted with the permission of the author.*

PC WAREHOUSE

80 Locations Nationwide

You'll come for the price
You'll stay for the service

NOVELL Networks
Service
Consulting
Installation

SONY LASERLIBRARY
External CD-ROM Package
***Sound Blaster Pro**
***Interface**
***6 CD Titiles**
***SONY Speakers**
$819
Model 7305

CD - ROM

380ms

Mitsumi Bus Int.	$239
SONY 31A Int.(490ms)	$269
SONY 541 SCSI Int.	$429
SONY 7211 SCSI Ext.	$549

280ms

NEC 84 SCSI Int.	$549
NEC 74 SCSI Ext.	$609
Texel SCSI Int 265ms	$409
Toshiba SCSI Int 200ms	$489

Creative Labs
*Sound Blaster Pro Basic..$159
*Video Blaster..............$349
*CD-ROM Upgrade Kit...$369
*Multimedia Upgrade...$529
*Pro Audio 16.............$189

IBM PS/ValuePoint
386SLC-25 : 80MB/$949, 170MB/$1149
486SX-25 : 80MB/$1229, 170MB/$1449
486DX-33 : 120MB/$1619, 212MB/$1819
486DX2-66 : 212MB/$2459

Monitor
14" 6312..$389
14" 6314..$519
15" 6319..$639

* 4 - 32 MB RAM
* IBM Mouse
* SVGA 1024 1MB
* 5 Expansion Slots
* Norton AntiVirus 2.1
* One-year On-side Warranty

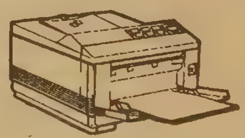
Kenitec NoteBook
*VGA LCD
*CARRY BAG

Special : SX-20/80MB..$949, 120MB..$1169

	80 MB	120 MB	213 MB
SX-25, 1MB	**$1099**	**$1199**	**$1469**
486SLC-25, 4MB	**$1369**	**$1469**	**$1739**

LaserJet 4 HEWLETT PACKARD * We Carry Full HP Printer Line *
*8 Pages per Minute
*600dpi High Resolution
*2-32MB Memory
*45 Scalable Fonts
*HP PCL 5 Language

$1379



Memory Upgrade :
1MB/2MB for IIp+/IIIp/III/IIID...........$69/$99
2MB/4MB for HP IIISi/4......................$99/$169
Appletalk/Font Cartridge...........................$Call

Toner :
IIp/IIp+/IIIp......$69
II/III/IIID............$79
4..........................$99
IIISi......................$119

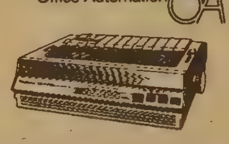
DeskJet 500............$389
DeskJet 500C........$499
DeskJet 550C........$689
LaserJet IIp+........$769
LaserJet IIIp..........$939
LaserJet IIID.......$2289
LaserJet IIISi.......$3189

LaserJet 4M.............$1949
ScanJet IIp.................$829
ScanJet IIc...............$1399
PaintJet.......................$699
PaintJet XL...............$1669
PaintJet XL300.......$2269
PaintJet XL300/PS.$3299

Postscript/Auto.......$349/$479
IIp/IIIp/II/III Legal Tray....$69
IIp/IIIp Env Tray...............$79
III Env Tray.......................$79
IIID Env Feeder................$269
Lower Cassette..................$149
Fax/Plotter........................$Call

Panasonic Office Automation OA

KX-P1123.......$199
KX-P1124i......$279
KX-P1624.......$349
KX-P2123.......$239
KX-P2124.......$319
KX-P2624.......$379



KX-P4450i.$1099 KX-P4455.$1699

Colorado Trakker
Parallel Tape Backup
120MB $359
250MB $419

386SX-33	386 - 33/40	486 - 33	486 - 33	486 - 50	486 - 66
*386SX-33 CPU	*386DX-33/40 CPU	*486DX-33 CPU	*486DX-33 CPU	*486DX-50 (not DX2) CPU	*486DX2-66 CPU
*1-16MB RAM (70ns)	*1-32MB RAM (70ns)	*1-32MB RAM (70ns)	*1-32MB RAM (70ns)	*1-32MB RAM (70ns)	*1-32MB RAM (70ns)
*AMI BIOS	*128KB CACHE	*256KB CACHE	*256KB CACHE	*256KB CACHE	*256KB CACHE
*Teac 1.2 or 1.44 FDD	*AMI BIOS	*AMI BIOS	*AMI BIOS	*AMI BIOS	*AMI BIOS
*IDE FD/HD CTL	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD	*Teac 1.2 or 1.44 FDD
*2S\1P\1G Ports	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL	*IDE FD/HD CTL
*101-key Keyboard	*2S\1P\1G Ports	*2S\1P\1G Ports	*2S\1P\1G Ports	*2S\1P\1G Ports	*2S\1P\1G Ports
	*101-key Keyboard	*101-key Keyboard	*101-key Keyboard	*101-key Keyboard	*101-key Keyboard
$299	**$349/$359**	**$449** w/Cyrix CPU **$669** w/Intel CPU	**$689** VESA	**$809** ISA **$839** VESA	**$929** ISA **$949** VESA

1 Year Parts / 2 Years Labor Warranty

High Quality, Full Compatibility And Reliability Are Guaranteed!

2/23/93

Monitors
NEC 4FG.............$749
NEC 4D 16".........$599
SONY 1304s...$569
SONY 1430....$629
SONY 1604s...$999
SONY 1936..$1899
NEC 3FGx......$649
NEC 5FG...........$1299
NEC 6FG...........$2369
Viewsonic 6E.......$359
Viewsonic 6FS.....$569
Viewsonic 7..........$999
Arche .28 SVGA.......$285
Arche Non-Interlaced.........$319
12"/14" Mono......$89/$119
14"paper white SVGA....$169
Nanao F550i............$1099
Nanao T560i............$1699
Nanao T660i............$2549

Video Adapters
OAK 800X600 VGA............$39
Trident 1024 1MB.................$69
Tseng Labs 1024 1MB...........$99
Genoa VLB 1MB.................$139
ATI GraphicsUltra+ 2MB.$329
1MB......$
ATI GraphicUltra Pro 2MB/VLB..$439/$449
Orchid ProDesigner IIs 1MB...................$149
Orchid Fahrenheit 24X 1MB...................$179
Orchid Fahrenheit VLB 1MB...................$229
Diamond Stealth 24 1MB.........................$189
Diamond 24 VLB 1MB..............................$189
Diamond Viper VLB 2MB VRAM.........$429

Hard Drives
Conner/IBM 40MB...$149/159
Conner 80MB IDE...........$189
Conner 120MB IDE.........$229
Conner 212MB IDE.........$329
Maxtor 130MB IDE..........$229
Maxtor 213MB IDE..........$329
Maxtor 250MB IDE.......$369
Maxtor 340MB IDE.......$589
Maxtor 535MB IDE.......$899
Maxtor 340MB SCSI......$599
Maxtor535MB SCSI.......$919
Toshiba 877MB SCSI...$1079
Toshiba 1.2GB SCSI.....$1439

Modems
Zoltrix 2400 Int......................$49
Zoltrix 24/96 Fax/Modem....$79
Zoltrix 14.4K Fax/Modem..$249
Intel Satisfaxtion 200..........$299
Intel Satisfaxtion 400..........$399
Intel Satisfaxtion 400e........$469

Scanners
HP ScanJet IIp w/IF.........$829
HP ScanJet IIc w/IF.......$1399
Microtek 1200dpi..$879/$1129
Logitech Scanman32 ....$129
Logitech Scanman256.........$249
Logitech Scanman256w/OCR.$299

Misc
SummaSketch III 12x12$299
NEC SilentWriter 95.$1389
NEC SilentWriter 97.$1789
Tape Backup................$Call
Memory........................$Call
Software.......................$Call

Sunnyvale
1082 E. El Camino, #3
(Btw Lawrence & Henderson)
(408) 985-1309

MON-FRI 9AM-7PM
SAT 10AM-5PM
Financing Available
Corporate Inquiry Welcome

MasterCard
VISA

Prices & Specs
Subject to Changes
w/o Notice
Advertised Prices
Based On 2%
Cash Discount

Palo Alto
454A California Avenue
(Btw El Camino & Alma)
(415) 321-9288

THE NEED FOR EMAIL POLICY

Borland could have strengthened its case against Wang if it had followed the recommendation of the Electronic Mail Association to announce its policies on electronic mail. As it was, a source says the Santa Cruz County District Attorney staff took potential violations of the electronic privacy act so seriously that they used a top computer-crime prosecutor from the San Francisco area to help write the search warrants.

Despite Borland's hard-learned lessons, it continues to refuse to implement a formal email privacy policy that declares just when electronic messages sent from company equipment are company property. Perhaps Borland is afraid that announcing such a policy would simply remind miscreants to erase incriminating email files before they are found. If so, that's naive and shortsighted.

Some companies may be reluctant to announce in advance that they are constantly snooping. So be it, but then they should refrain from scanning MCI in-boxes. Whatever they do, they have to confront the reality of the enormous power of digital media. In an age when a company's most valuable property may be intangible—the source code for a software package, for example—an email account may amount to an unlocked door on a warehouse.

> **It's easy to understand the anger Borland executives felt in discovering an apparent information hemorrhage.**

The electronic privacy act's procedures may need streamlining, and the Borland case may be the ratchet that makes the adjustments. By the time Borland could have obtained court authorization to examine Wang's electronic mail, some of the messages might have been deleted by MCI's automated five-day cleanup function. New legislation requires fine-tuning in the light of the complexities of real world situations in order to be effective for the purposes for which it was originally designed. But the lesson here is that corporations must begin to adjust their own policies to fit the technologies they use. ■

ROSS-DOVE
AUCTIONEERS SINCE 1937
COMPANY, INC.

MAJOR PUBLIC AUCTION

COMPUTER/MANUFACTURING
INVENTORY SURPLUS
TO ONGOING OPERATIONS

- PERSONAL COMPUTERS AND PERIPHERALS Featuring Everex 486's, 386's, 286's, notebooks, laptops, Apple Mac II's, SE 30's, scanners, laserwriters, computer kits, Sun & NeXT workstations, monitors, disk drives, hundreds of tape drives, keyboards and much more!
- SEMICONDUCTOR INVENTORY Thousands of integrated circuits including CPU's, memory. Also, programmable, logic and peripheral chips!
- ELECTRONIC TEST & INSTRUMENTATION Oscilloscopes, logic analyzers, multimeters, testers, and much more!
- BOARD MANUFACTURING EQUIPMENT Featuring Emhart-Dynapert V-12000 and DD4500 axial & dip inserters, Emhart-Dynapert UCSM-G60 sequencer, Electrovert wave solder system with cleaner, burn-in chambers, conveyors, lead trimmers, bake ovens and more!
- OFFICE FURNISHINGS AND FACILITY EQUIPMENT Featuring Steelcase workstations, chairs, conference tables, filing and storage cabinets, power supplies, rolling carts, steel shelving, work benches, and much, much more.

EVEREX

FRIDAY, APRIL 2ND AT 10AM
Preview, Thursday, April 1st from 9am-5pm
901 Page Avenue, Fremont, CA

CALL FOR A FREE COLOR BROCHURE:(800) 445-DOVE
A 5% buyer's premium will apply at this sale. - CA Lic. # 616, 1120, 1265, 1277

330 Hatch Drive
Foster City, CA 94404
(415) 571-7400
FAX (415) 572-1502

6701 Center Drive West
Los Angeles, CA 90045
(310) 641-7400
FAX (310) 641-3878

11475 Olde Cabin Road
St. Louis, MO 63141
(314) 993-4500
FAX (314) 993-4437

444 Washington Street
Woburn, MA 01801
(617) 932-0605
FAX (617) 932-9290

NOVELL®

C.N.E.

For a Higher Degree of Mastery

Experts agree, just as some degrees help you in business or science, your Novell CNE and ECNE degree increase your expertise as a networking specialist. That's why more and more companies are either hiring or training their own CNEs at Certified Network Educators.

CNE Quick Course

If you're already proficient with Novell, it's easier than ever to obtain your degree by registering for the CNE Quick Course. Produced by Novell's CNE program developer, the CNE Quick Course is offered only by Certified Network Educators, and allows CNE certification in just 5 days.

CNE/ECNE Certification is closer than you think.

Novell Authorized Education Center

Call 1-800-LAN-STUDY
(800 -526-7883)
- Woodland Hills
- San Francisco

Certified Network Educators

Be sure to ask for a free CNE ASSESSMENT TEST DISK.

ABS IS Your BEST Source for YOUR COMPUTER NEEDS

386/SX33 $299

486/Dx33	$599
486/Dx50	$799
486 Dx2/50	$699
486 Dx2/66	$899

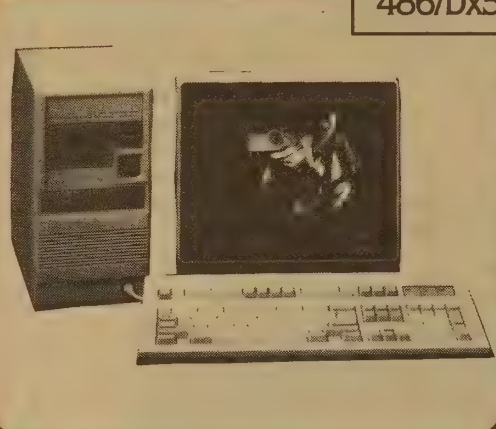
Base Systems: Motherboard W/128k Cache, 1MB Ram, 1.44MB FDD, IDE I/O 2S/1P/1G, 101k Keyboard, Case & P/S
One Year Parts & Lifetime Labor Warranty !
For Other Options & Configurations Please Call

486/SX33 $499

KFC Monitors

1024 x 768 .39mm	$219
1024 x 768 .28mm	$259
1024 x 768 .28 NI	$289
15" 1280 X 1024 .28	$469

KFC 17" .26 FLAT
1280 X 1024 NI
$799



Local Bus W/256k Cache

486/Dx33/Dx2 66	$669/$969
486/Dx50/Dx2 50	$769/$869

CONNER HDD

80MB	$195
120MB	$235
170MB	$255
200MB	$339

Quantum 52MB
$159

Our Goal Is To Provide You With a Perfect Solution

Trident SVGA Card

W/1MB	$51
W/512k	$48

Accumos SVGA Card
W/256K
$29

TEAC FDD

1.44MB	$54
1.2MB	$56

1MB 70ns MEM
$30

Mini Tower Case
W/PS $50

HP Laser Jet IV
$1369

Mitsumi FDD

1.44MB	$48
1.2MB	$51

ABS Can Be a One-Stop Solution For You.
We Sell, Rent and Repair Computers.
Certified NetWare Engineers Available for:
NetWork Installations, Support and Maintenance.

Novell Authorized Reseller

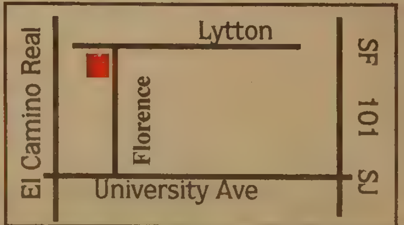
Novell Certified NetWare Engineer

Microsoft Serial Mouse
$59

ABS
Full Service Since 1967
400 Florence St, Palo Alto
Tel **415/324-0616** Fax **415/324-0653**

MasterCard VISA

M-F 9-6
Sat 10-4

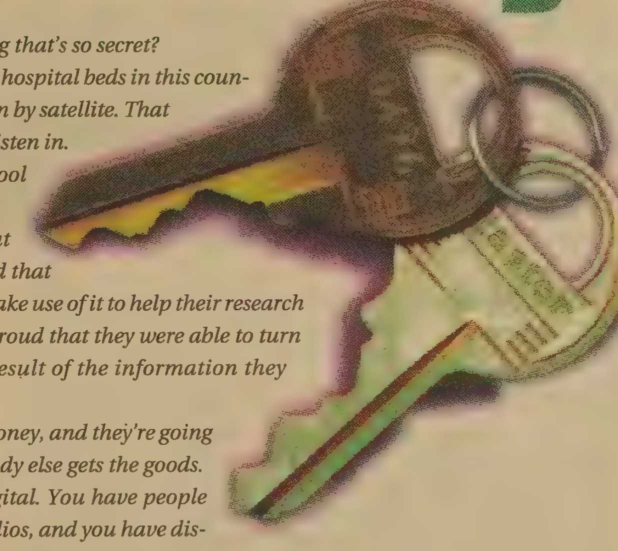


Prices Subject to Change W/O Notice, Not Responsible for Typographic Errors.

Encryption, Privacy & Data Security

Once the esoteric province of the diplomatic and military communities, encryption is playing an increasingly vital role in digital communications, with applications ranging from secure cellular phones to protection of intellectual property. But, as with all new technologies, encryption is stirring much debate as to its proper use.

BY MARY EISENHART



"Why do you and I need cryptography? What are we communicating that's so secret?

"I remember reading ten or fifteen years ago that a majority of the hospital beds in this country were being billed from one billing agency. The data was coming in by satellite. That means that anybody with a satellite dish near the billing place can listen in. Do we really want all of our medical records available to high-school kids who turn their parents' satellite dish into a big listening post?

"Also, the French equivalent to the CIA has freely admitted that they listen in on American communications whenever they can, and that they turn that information over to the French companies that can make use of it to help their research and development, their bidding on contracts. In fact they're quite proud that they were able to turn an over-one-billion-dollar aircraft contract to the French as a result of the information they obtained." —**Martin Hellman**

"It's obvious that someday people are going to want to sell bits for money, and they're going to need cryptography to make sure that they get paid and that nobody else gets the goods. You have artists, musicians, authors—basically their output is digital. You have people who are their managers or distribution channels, sound or film studios, and you have distribution channels that ultimately end up with the consumer.

"Now that we're talking about nothing but bits, how does the artist feel protected, that he or she is being compensated properly, that their intellectual property isn't being stolen, that it's being presented in the way they intended it?

"It's funny to me that the big-stakes players seem to be Atari and Nintendo and others. This is a mega-billion-dollar business, so they're the ones most interested in protecting their bits today." —**Jim Bidzos**

Until fairly recently, very few people outside the military, intelligence, and academic communities thought much about encryption; for most people, including personal computer users, it was an esoteric subject having little to do with the work at hand.

In the last few years, however, the picture has changed considerably, for a number of reasons. As networks, electronic mail, and collaborative computing have become widely used, the need for ensuring that messages are readable only by their intended recipient, and that documents are indeed authored by their purported creators, has become ever more urgent. Similarly, providers of content, from databases to entertainment software to CD-ROM clip art, want to be assured that the digital crown jewels aren't going to be copied

$UPER $YSPER $AVINGS

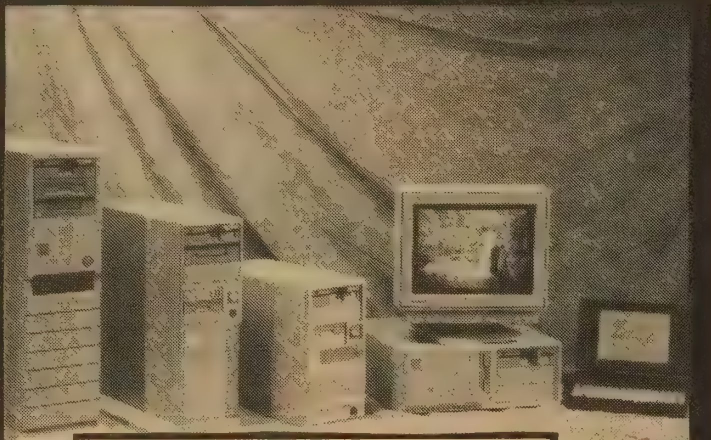
486 MULTIMEDIA PC

INTEL 486SX-25
W/170 MB HARD DRIVE
W/CD-ROM, SOUND COMMANDER PRO & STEREO SPEAKERS

SYSPER MULTIMEDIA Systems Include:

- 4 MB RAM/64K Cache
- 1.2 MB or 1.44 MB FDD
- 170 MB IDE HD
- SVGA Monitor
- SVGA 1 MB Card
- 101 Keyboard
- IDE Controller w/1S/1P/1G
- Desktop Case w/230W PS
- High-Performance CD-ROM Drive
- Sound Commander Pro Card
- MIDI Kit
- Microsoft's Windows Graphical Environment w/Windows 3.1
- Additional CD-ROM Titles Including Encyclopedia
- Stereo Speakers

ONLY $1545



2 YEAR LABOR 1 YEAR PARTS WARRANTY

30 DAY MONEY BACK!

SYSPER 486 VESA LOCAL BUS

486-33	486-DX2-66
$1375	$1645

•WITH 32 BIT LOCAL BUS 16 MILLION COLOR VIDEO CARD
•DRAMATICALLY IMPROVES GRAPHIC SPEED!!

SYSPER LOCAL BUS Systems Include:

- SVGA Color Monitor .28 Dot
- IDE Controller 32 Bit VL Bus
- 32 Bit VL Bus Video Card
- 64K Cache on Board Exp to 256K
- 4 MB RAM Exp to 32 MB
- 1.2 MB or 1.44 MB FDD
- 130 MB Hard Disk w/64K Cache
- 1 Parallel/2 Serial/1 Game Ports
- 101 Key Keyboard
- 200 Watt Power Supply
- Baby AT or Mini Tower Case

SYSPER 486 ISA SERIES

W/130 MB HARD DISK & SUPER VGA COLOR MONITOR

BOTH DX & SX SERIES SYSTEMS INCLUDE:

- 4 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 130 MB IDE Hard Disk
- 16-Bit VGA w/512K
- 14" 1024x768 Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Math Co-Processor Socket
- Clock/Calendar w/Battery Back-up

486SX-25 W/128K	$1045
486DX-33 W/128K	$1195
486DX2-50 W/128K	$1295
486DX50 W/128K	$1365
486DX2-66 W/128K	$1465

SYSPER 386 SERIES

W/80 MB HARD DISK & SUPER VGA COLOR MONITOR

SX33	$725
DX33 W/64K CACHE	$795
DX40 W/64K CACHE	$815

BOTH DX & SX SERIES SYSTEMS INCLUDE:

- 1 MB RAM on Board
- 1.2 MB or 1.44 FDD
- 80 MB IDE Hard Disk
- 16-Bit VGA w/512K
- 14" 1024x768 Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Port
- Desktop Baby or Mini Vertical Case
- Math Co-Processor Socket
- Clock/Calendar w/Battery Back-up

MICRONICS 486 VL BUS SYSTEMS

- •MICRONICS 486-33 VL-BUS
- •4 MB, 70ns, exp to 64 MB
- •256K Cache
- •Maxtor 130 MB, 15 MS Hard Disk
- •101 Maxi Keyboard
- •Teac 1.2 or 1.44 MB Floppies
- •MICRONICS VL-BUS Video Tseng
- •SVGA Monitor .28 Dot
- •MICRONICS VL-BUS IDE Controller
- •Built-In 2 Serial/1 Parallel Ports
- •Mini-Tower/Desk Top Case

486DX-33	486DX2-66
$1679	$1999

Genoa SYSTEMS CORPORATION VESA LOCAL BUS

VESA STANDARD LOCAL BUS SYSTEMS

Genoa SYSTEMS CORPORATION The TurboExpress 486VL Motherboard And Windows VGA 24 Video Adapter!

The TurboExpress along with the WindowsVGA VL series provides speed and 16 million true colors computing power you need, at the price you can afford. The TurboExpress has been tested and approved with a broad and growing list of commonly used software products

SYSPER LOCAL BUS SYSTEMS INCLUDE:

- •Genoa TurboExpress 486VL Motherboard
- •32 Bit Local Bus Genoa Video Cardwith 16 Million Colors
- •32 Bit VL-BUS IDE Controller
- •SVGA Monitor .28 dot
- •128K Cache on Board Exp to 256K
- •4 MB RAM Exp to 128 MB
- •1.2 MB or 1.44 MB Floppy Drive
- •130 MB Hard Disk w/64K Cache
- •1 Parallel/2 Serial/1 Game Port
- •101 Key Keyboard
- •200 Watt Power Supply
- •Baby AT or Mini Tower Case

486DX-33	486DX-50	486DX2-66
ONLY	ONLY	ONLY
$1475	$1625	$1735

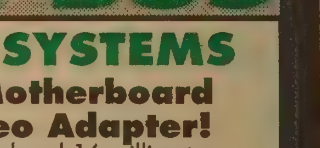
SYSPER

SYSPER TECHNOLOGIES, INC.

4031 CLIPPER COURT, FREMONT, CA 94538
HOURS: MON-FRI: 9AM-6PM; SAT: 10-4 PST
FAX: (510) 651-9699

TEL: (510) 651-8002

PRICES SUBJECT TO CHANGE W/O NOTICE.
NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS



and bootlegged, and that the vendors and creators of the content are properly reimbursed.

These issues pale in comparison to the security issues raised by the widespread adoption of wireless communications. It has been reported, for instance, that a very lucrative form of industrial espionage consists of driving up and down the Bayshore Freeway eavesdropping on Silicon Valley's cellular phone conversations.

As a result, encryption, once the province of hobbyists and people with security clearances, is entering the mainstream, as hardware and software vendors adopt it as the best solution to their customers' security needs.

At the same time, however, the law enforcement community views the spread of robust encryption technology as a threat to its activities, and has regularly introduced legislation in Congress (most recently the failed Digital Telephony bill—see Issue #101) to prevent the use of encryption technology that would preclude law enforcement's ability to obtain plain-text versions of wiretapped communications. Consequently, there's a growing conflict between vendors for whom strong encryption is a competitive necessity and the law enforcement and intelligence communities.

TOWARD USER-TRANSPARENT ENCRYPTION

The technical underpinnings of today's cryptography offerings are enormously complex, and the governmental labyrinth of standards bureaus and interested agencies rapidly becomes mind-numbing to the nonprofessional. But as it's incorporated into a growing range of software and hardware products, encryption on personal computers will soon be as ubiquitous, and as user-transparent, as Dolby on consumer audio equipment.

Jim Bidzos is president of RSA Data Security in Redwood City, a company which provides encryption technology to end-user and OEM customers that include Microsoft, Apple, Novell, and a host of others. RSA's first OEM customer, in 1986, was Lotus, which incorporated the technology into its groupware product Lotus Notes.

Bidzos explains: "Lotus Notes is a perfect example of where encryption is headed. There are a quarter of a million Lotus Notes users as of today, sending over one million RSA-encrypted messages every day, and the best part is, they don't even know it.

"In Lotus Notes, I would register you as a user and you would get an account, and that's all you'd know. But in fact what you've gotten is your own RSA key pair, your digital signature; everything you send will be encrypted and authenticated and it works great. You have an account, you send messages. If somebody tries to impersonate you and read your mail, it doesn't happen. A quarter of a million people are sending a million messages every day, and not even really needing to be aware of it, but enjoying that level of privacy and security; I think it's a perfect example of how this is done right.

"Now take Lotus, Microsoft, Sun, Novell, and you'll see where this is heading; RSA is coming to be a standard part of the Macintosh, accessible to application developers. That's the real beauty of it, I think. All I want is my next favorite applications to have security built in.

"By putting a high-quality implementation that is absolutely trusted by the people who know the most about this stuff inside the operating system of the Mac and of Windows NT and of UNIX, and giving application developers access to simple interfaces—encrypt, sign, verify—this is the way you give the most number of people what they want, which is absolute security with no overhead at no cost. Isn't that the way Dolby is?"

HOW IT WORKS

How does the process of encryption work on a personal computer?

Stanford professor Martin Hellman, whose work has played a key role in the evolution of encryption technology for over twenty years, explains: "First of all, we'll assume your personal computer is secure. When you're communicating messages over the Internet or whatever email system you're using, you're much more vulnerable, because your messages are going through all these intermediate nodes in the network and people can examine them looking for keywords.

"If you assume your PC is secure, you'd be asked [by a software prompt] to enter your key into the PC. You might want to keep the same key for a long time, or you might want to change the key on a daily or weekly basis.

"Think of it as a black box—I've got a piece of software that accepts the key, it accepts a message to be encrypted or decrypted, and it does it for you. If it's encrypting, it takes a message that looks like English—'Dear Mary, we'll meet at 1:15 on Monday'—and out comes absolute garbage that looks like random bitstream. If you take that same random bitstream back in, and decipher it with the same key, out comes 'Dear Mary, we'll meet at 1:15 on Monday.' You don't have to understand what's going on inside that software any more than you have to understand what's going on inside your compiler or spreadsheet; from a user point of view, it scrambles it, it unscrambles it."

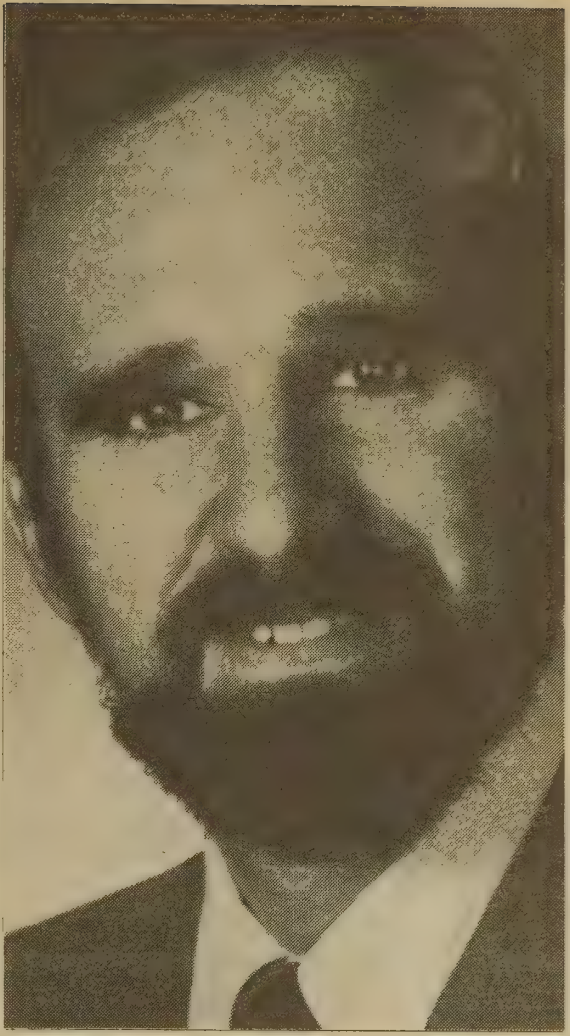
No matter how good the encryption technology, however, the security of the individual message depends greatly on the length of the key used (another factor is the number of iterations of encryption—i.e., the plain-text message is encrypted using one key, then the encrypted message encrypted again with another key, and so on). Keys are measured in bits; the more bits to the key, the more secure it's likely to be.

Hellman explains: "You have one bit. A bit is a zero or a one. There are two possibilities. If you have two bits, then the first bit can be a zero or a one, the second bit can be a zero or a one, and you have four possibilities—00, 01, 10, and 11.

"If you think of a key as being like the combination to a lock, and if there are 56 bits, you'll have to dial in the right number 56 times. How many possibilities are there? There's 2, times 2, times 2, 56 times, which we abbreviate as 2^{56}. To put that in numbers you can relate to, that's roughly 100,000 million million keys. So trying each one is kind of annoying."

DES

The Data Encryption Standard (DES) was promulgated in 1976 by the National Bureau of Standards (now the National Institute of Science and Technology) as the basis for hardware and software security



Martin Hellman: "DES is extremely strong, and at the same time extremely weak. It's extremely strong against your next-door neighbor, or against even a commercial adversary, but extremely weak against an intelligence organization or any other entity that doesn't have to live within the law, and which has budgets on the order of $1—10 million they can invest in it."

Jim Bidzos: "History is on the side of the guy from NSA. What we're trying to accomplish by this policy of keeping export controls on US companies is very effective. I don't think Clinton will say, 'No, it's more important that Apple be able to sell strong encryption in France.'"

products in the US, and has been the subject of debate as to its actual effectiveness ever since.

Hellman explains the standard's development: "As early as 1968, IBM recognized the need for encryption as a result of the growing use of time-shared computers and computers in communications. So they started work as early as 1968, and it came to fruition with DES, which was announced in March of 1975.

"When NBS announced it as the standard, IBM agreed to put its patent rights largely in the public domain, that is, they would issue royalty-free licenses to meet the standard. At that point IBM was still powerful enough in the computer industry that if they had had proprietary rights to the standard, they would have aggravated their antitrust problems. Also at that point they were still a large enough part of the computer market that whatever was good for computing was good for IBM, so their putting it in the public domain made some sense. There are also some theories that by putting it in the public domain as a national standard, they relieved themselves of potential liability should it ever be broken."

Apparently at that point the NBS also recognized the need for a standard, and, Hellman suspects, so did the ultra-secret National Security Agency. NSA's concerns decades ago illustrate the ongoing ambivalence of the law enforcement and intelligence agencies about encryption.

Says Hellman: "NSA has two parts, COMSEC and COMINT. The COMSEC people are the ones who want to protect American communications from prying foreign governments; the Communications Intelligence people are the prying eyes of the American government trying to spy on other governments' activities.

"You can see the tradeoff—the COMSEC people want a high level of security to protect the communications that you and I, or IBM and Bell Labs, carry on with each other. They would want a very secure DES. The Communications Intelligence people would worry that if this is publicly available and is used by their adversaries, they won't be able to know what's going on in Libya or Iraq, or other places where it's important.

"We have a problem, in that the technical expertise within NSA is so much greater than the technical expertise within NIST in cryptography that if NIST developed things, would we feel comfortable with them? It's a double bind all around. If NSA's not involved, we're unhappy because we worry that it might be weak. If they're involved, we're worried because they might have weakened it.

"In the '70s, the communications security side of NSA was very worried about Soviet spying. They were aware that the Soviets were listening in on a lot of American communications. So NSA was very concerned, and may even have prodded NBS to come out with the Data Encryption Standard—but they have this problem of making sure it's not so good they lose their communications intelligence."

Given the provenance of the standard, the entire history of DES is fraught with concern—of varying degrees of hysteria—as to just how secure the technology actually is. Hellman takes a balanced view:

"Let's take the point of view that DES is secure. What is the evidence for that?

"No one has figured out how to break it [the full, 16-iteration implementation of DES] short of exhaustive search, trying one key after another. That's like, with a combination lock, trying one combination after another until you open the lock. We've looked for shortcuts to breaking DES. No one in the open literature has published anything that breaks the full DES significantly faster than exhaustive search.

"However, if I've intercepted a message you sent, and you're using DES, and I've got a copy of DES, I can take that message and, at whatever speed my computer will allow me to change keys, change the key and try to decipher it. There's nothing to stop me from programming my computer to accept keys at the rate of a million a second if it'll run that fast.

"Unlike with passwords, where it's only the central computer that knows whether or not you're entering the right password, here you're able to tell when you hit the right key, because when I take this garbled-looking message that I intercepted and decrypt it with the right key, out comes a message that looks like 'Dear Mary, we'll meet at 1:15 on Monday.' And you can recognize it fairly easily using computer-based techniques. If you built custom hardware, you could try DES keys at the rate of a million a second.

"Now how hard is it to do exhaustive search? I would argue that exhaustive search is something that a dedicated adversary can afford to do. Back in the '70s we argued that it would take a $20 million machine, and maybe we were optimistic, maybe it was a $50 million machine. But today, it's somewhere between $1–10 million capital costs; once I've designed it I could make replicas for somewhere between $100,000 and $500,000 apiece. Most of it's the design costs.

"Well, on the one hand, that's a pretty good level of security. If someone's going to go out and spend millions of dollars to break your system, is your next-door neighbor likely to do it? Is the hacker down the street likely to do it? No. Is IBM even likely to do it? No, because it involves significant enough resources that even if somebody at IBM wanted to do it, he'd have to get other people involved, and as soon as you do that and it clearly goes counter to any company's stated legal policy, you just don't dare do it in a company.

"On the other hand, if your opponent's the Mafia, you'd have to worry. If your opponent is the French intelligence service, you've got to worry. So that's basically why DES is extremely strong, and at the same time extremely weak. It's extremely strong against your next-door neighbor, or against even a commercial adversary, but extremely weak against an intelligence organization or any other entity that doesn't have to live within the law, and which has budgets on the order of $1–10 million that they can invest in it."

As for the oft-expressed fear that the NSA built trapdoors into DES to ensure easier eavesdropping for itself, Hellman has changed his views somewhat over the years. "While I was very concerned in the 1976 time frame about a trap door because we were getting so little information from IBM and NBS and anyone else that was involved in this, and we found suspicious structures, subsequently over the next couple of years I had some very direct con-

For the Best Customer

SERVICE AND SUPPORT

PC Professional, Inc.

Serving the entire Bay Area for the past twelve years

Questions about Everex and/or your Everex computer system (s), call us:

The Authorized Everex Service Center

Everex Computers

- Everex Cube
- Everex Step
- Everex Tempo Standard
- Everex Tempo Modular
- Everex Portables

Upgrades
Parts
Service
Support

Everex Peripherals

- Everex Hard Disks
- Everex Monitors
- Everex Modems/Fax
- Everex Tape Drives
- Everex Network Products

PC Professional's Service and Support options include:

- ◀ 8 Hour Response Time
- ◀ On-Site Service
- ◀ Hardware & Software Troubleshooting
- ◀ Network Troubleshooting
- ◀ Loaners/Rentals
- ◀ Delivery
- ◀ Installation
- ◀ Telephone Support
- ◀ Service Agreements
- ◀ Technical Expertise

The Full Service Source for All Your Computer Needs!

For the facts on Everex call us today!!

Phone: (510) 465-5700 Fax (510) 465-8327

1900 Webster St., Suite B, Oakland, 94612

versations with people at IBM, that lead me to believe that there are no trapdoors in DES.

"However, NSA and its foreign equivalents have much more experience than the academic community at production cryptanalysis—having thousands upon thousands of people you want to spy on, and a huge budget to try and do it. So my guess is they know a lot of things we don't know in that area. And so I think they know ways to break DES faster than exhaustive search. It's only a guess on my part, but it's based on general principles that they can apply to any system."

PUBLIC KEY AND RSA

DES is an example of what's called private-key encryption—sender and recipient share a common key, which in turn creates some security problems. For instance, one party could accidentally lose the key or inadvertently transmit it to a third party. Alternatively, one party could readily impersonate the other.

Both these problems are addressed with an alternative technology codeveloped by Hellman, public-key cryptography. The RSA algorithm (named after Rivest, Shamir, and Adelman, the scientists who created it) is the basis for the RSA Data Security products.

He explains, "With private key cryptography, you and I share a common secret key if we want to communicate with each other, and it's got to be kept secret, so we have to have some way to get this secret key from me to you or you to me, or from some key distribution authority to the two of us.

"Now in the military and the diplomatic community, they've traditionally used couriers, the diplomatic pouch, armed guards, to take keys around. But if you and I want to talk by telephone, to have an armed guard carry a key from me to you before we talk by telephone or before our computers talk in an electronic mail exchange, is really annoying. So key distribution, which was a big problem even in the military and diplomatic communities, was going to be a horrendous problem for commercial use.

"Business needs public keys more than the military does. The military can afford couriers, and they can put a lot of money into security that business cannot. Security is the utmost concern in the military; it's not the utmost concern in business. Also, in the military, you have a very limited number of connections that can be made—I don't talk to just anybody; I talk to a few specific people. Whereas in business it doesn't work that way. You have many more connections possible, and so public-key encryption's more important in a commercial system.

"Basically there are three algorithms that you'd have in a public key system. One is a key generator, which generates a public key/private key pair. This algorithm says, 'Give me a random input.' So you might sit at the keyboard and bang away for a while, type in your favorite poem, your social security number, your name, your children's names, any random stuff that comes to mind for a while, to generate enough random data that nobody could possibly reconstruct that exact same sequence in the exact same order.

"It generates a very long random number as the result of this, and that random number is fed into this key generator algorithm, and it churns away for a few minutes, and out comes a public key, which you can tell to anyone, and a secret key, which you'd better keep secret.

"Then we have to have an algorithm that will do encryption, and one that will do decryption. If we want to do key exchange, that is, talk privately, I'd get your public key somehow, and I'd say, 'Dear Mary, I want to talk to you, use the following 56-bit—or better, 168-bit—number as our private key in a DES system.' Instead of having a courier take that key to you, I use your public key to encipher it and tell you what it is. I then send it to you; you get this message, you know that it's a message of this form, it has some identification that says it's a message enciphered in your public key. You take out your secret key, and use the secret key to decrypt the message, and now you know what 168-bit key I want to use with DES.

"So you have three modules—the key generator, which accepts random output and outputs a private key and a public key; the enciphering module, which accepts the public key and a message and puts out an encrypted message; and then the decrypting module, which accepts a secret key and a garbled message and puts out an un-garbled message, if the secret key that you put into it is the one that goes with the public key that was used to generate the message.

"The other thing public key does is give you a digital signature. Think about the problem—you and I reach a business agreement electronically. We want to sign it. We want it to be a valid contract. How do we do that?

"If we're using a private key system like DES, I might encipher the message in the secret key we share, and send it to you and say, 'Here, you know it came from me because no one else has this secret key.' Well, there's a problem—*you* have that secret key. It prevents a third party from forging messages, so if we trust each other and we're only worried about third-party forgeries, then DES is fine.

"But in most business communications, it's exactly the opposite—we do trust each other, but we worry that someone might later, under duress, change something or forget. Whatever it is, we want to have the equivalent of a signature.

"What you can do if you have a public key system like RSA is—let's say we reach an agreement: 'Dear Mary, I will pay you $5000 if you do the following programming work for me.' You want me to sign that. I operate on it with my secret key—whether you act on it with the public key or the secret key, it garbles it totally. So I send you the garbled-up key. The public key and the secret key are roughly inverse operations, so you could take my public key, apply it to the garbled-up message, and see that out comes the agreement that we reached.

"Now, if later I disclaim having signed that, what do you do? You take the garbled version to a judge. The judge looks up my public key and checks that when he acts on the message with the public key out comes 'Dear Mary, I will pay you...' How does the judge know that I signed it? Going from the message to the garbled version, I needed to use my secret key. The public key that everybody has can only go from the garbled version to the clear-text version. The problem you'd have if you wanted to forge this would be to go from the clear-text version to the garbled version, which requires my secret key, which you don't know.

"That's called a digital signature."

Martin Hellman: "It's quite clear that the powers that be, clearly NSA and perhaps the FBI, don't want a public key exchange standard. Why? Because if you and I can change our keys real rapidly, so can the Ayatollah and Qaddafi and all those guys."

POLICY ISSUES

The current focal point in Washington of the conflicting interests between industry and law enforcement is the Digital Signature Standard, in which the customer-driven industry wants the dual-function (privacy and digital signature) RSA adopted as a standard, while law enforcement and intelligence are lobbying hard for a signature-only standard. Says Hellman, "It's quite clear, and it was said at the RSA Data Security conference publicly, that the powers that be, clearly NSA and perhaps the FBI, don't want a public key exchange standard. Why? Because if you and I can change our keys real rapidly, so can the Ayatollah and Qaddafi and all those guys. They don't mind signatures so much, because they're not in the business of forging documents at NSA, but they are in the business of listening in on communications, so it was pretty clear that a signature-only standard, which they tried to put out, was to prevent enhanced privacy. The question at the conference was, 'What would the interest of the law enforcement community be in DSS?' and the answer was quite revealing. The interests of the law enforcement and national security communities—the representative broadened it—was to have a signature-only standard."

History indicates to Hellman that this approach is problematic. "The law enforcement community has some legitimate interests in wiretapping, and when it's carefully controlled by the courts, I think it is a good balance between privacy and the chaos

PROVEN TECHNOLOGY, INC

3160 De La Cruz Blvd., Suite 108, Santa Clara, CA 95054
Bus: (408) 496-0369 Fax: (408) 496-0259
Hour : Mon - Fri 9:00a.m. - 5p.m.

Preconfigured Network Special

File Sever
- *486/33Mhz 256K Cache
- *4MB RAM, 213MB HD
- *1.44MB FDD
- *14" Mono Monitor
- *16 bit ethernet card
- *Middle Tower Case

4 Workstations
- *386Sx-33 Mhz
- *1MB RAM
- *1.44MB FDD
- *14" Mono Monitor
- *16 bit ethernet card
- *Mini Tower Case

Includes: Novell Netware 3.11 (5 USERS)
Option (Please Call): Tape Backup system, 10 Base-T Concentrator, UPS

Sale Price: $4,799

Experienced **Certified NetWare Engineer** on staff

Please call for Network Configuration Not Listed

Networking & Email Special

- NE2000 /T ------------------------------$69/$ 73
- **EtherLink III** (3C509) /TP -------------- $139
- 10BaseT- HUB- 6/8/12 Ports ---$169/$219/$479
- **UPS** - American 600/900VA ----------$297/$419
- **Tape Backup** - 250 MB----------------------$249

E-mail Special

Da Vinci-v2.02 -10 user
Windows & DOS
$ 599

New Products

- 2.88 MB Floppy Drive with 4 Floppy Controller--------- **$ 139**
- 2.88 MB 4 Floppy Controller with Multi-I/O & IDE --------------**$59**
- SCSI+IDE+Floppy COMBO intelligent Cntrroller compatible w/ Novell & Unix------**$109**
- IDE Caching controller – 0K (expandable to 16MB) ISA **$129** / EISA **$199** / VESA **$259**
- IDE VESA Local Bus HD/FD controller ----------------------**$126**
- VGA VESA Local Bus w/ 1MB RAM ----------------------------**$199**

MULTIMEDIA

Multimedia kit TOGO
- •Sony 31A CD-ROM Drive
- •Sound Blaster Pro Basic Board
- •Kodak Photo CD w/ Soft & 24 samplers
- •6 CD-Titles

$499

Multimedia MIDI Kit
- •MIDI Cable
- •Trax MIDI recording studio diskette with user guide

$59

Sound Set
- •Sound Blaster Pro Basic
- •2 MPC Titles : Chessmaster 3000 Wing cmdr/Ulttima VI
- •Audio Cable

$169

SONY (OEM) Internal CD-ROM $279
CD-ROM Software Package - 5 Titles $ 99

- FREE (LAN/WAN) Network Proposal
- E-Mail Solution & Software Customization
- Network Admin (Remote & Phone Support)
- On-Site Computer & Networking Services

Terms:
- •Prices & Availability subject to change
- •Not responsible for typos
- •Company P.O.upon credit approval
- •Warranty: 1 Yr. Parts & Labor on systems

Efi's DISCOUNT COMPUTERS

3Com® · AST RESEARCH INC. · EVEREX · Canon · SAMSUNG · MITSUBISHI ELECTRONICS · TOSHIBA · intel® · ZENITH data systems Groupe Bull · NEC · i·MEGA Makers of the Bernoulli Box · Acer · altima · OKIDATA · IBM · COMPAQ · ALR · ALPS AMERICA · Panasonic · EPSON® · HEWLETT PACKARD · Hayes® · CITIZEN

JUST A SAMPLE

LOWEST PRICES ON ALL AST PRODUCTS GUARANTEED!

New AST Notebook 386/SL25 w/4MB, 60MB	$2149
AST Power Premium 486/33	from 1925
AST Power Premium 386/25SX	from 1225
New AST Notebook 486SL25 w/4MB, 80MB HD, Mono	2195
3COM 3C509	125
IBM 386SLC, 80MB, 1.44, 2MB, DOS 5.0, 1MB VGA, Mouse	999
ALR Power Flex 386/33SX, 2MB, 512K VGA, 1.44	595
Canon 10EX	269
New Citizen GSX 230/240	269/319
32 Bit EISA Ethernet 3C579	239
Seagate 40MB w/Data Compression	145
Appoint Mouse Pen	65
96/24 Internal Modem	69

Prices Reflect a Cash Discount Only

TWO User network Starter Pack
FREE!!!
with purchase of Ethernet Card

Fax for inquiries, price bids & purchase orders: (510) 283-1744
Free delivery and installation of systems within 30 miles. Free in-store installation of any product.

CALL US FOR YOUR PRICE ON ANY PRODUCT.
HOURS: MON.-FRI. 10-6, SAT. 10-2
3441 GOLDEN GATE WAY, LAFAYETTE, CA 94549
(510) 283-1700
CALL BEFORE YOU BUY

We are actively seeking minority businesses supplying computer products, Please call!
Prices may change without notice. 90 day warranty on all products.

COMPUDATA

"A Name to Trust" **OUR SIXTH YEAR IN BUSINESS**

Best Prices In Town!

Save with Our... High Quality Products and Excellent Service

TOSHIBA T4400C

i486SX / 25MHz
4 MB RAM
120MB Hard Drive

$3459

TOSHIBA Satellite T1800

i386SX / 20MHz
2MB RAM
80MB Hard Drive

$1299

Texas Instruments Travelmate 4000 WIN SX/25

486SX / 25MHz
4MB RAM
120MB Hard Drive

$2429

TOSHIBA T1850

Satellite T1850

386SX / 25MHz
4MB RAM
80MB Hard Drive w/software bundle

$1599

TOSHIBA T1850C

Satellite T1850C

386SX /25MHz
Color Matrix
4MB RAM
80MB Hard Drive w/software bundle

$2199

IBM THINKPAD 700

486SLC-25MHz
4MB RAM
120MB Hard Drive
DOS, Windows, OS/2

$2749

IBM THINKPAD 700C

Color Notebook.................. **$3999**
(same configuration as above)

415/495-3422

100% Financing Available with Special Rates
Prices subject to change without notice.
Prices reflect a 2% cash discount.
Not responsible for typographical errors.

COMPUDATA "A Name to Trust" OUR SIXTH YEAR IN BUSINESS

685 Folsom Street • San Francisco, CA
Parking Available First ½ hr FREE
Mon-Fri 9:30-6:30 Sat 11-5

VISA · AMERICAN EXPRESS · DISCOVER

of having criminals running around wild. Certainly the greater use of encryption is going to hurt the law enforcement community, because drug dealers will be using cellular telephones and radios and even more sophisticated electronic mail systems over time.

"I would like nothing better than to have a cryptographic system where, by waving a magic wand, we could make sure that drug dealers couldn't have privacy and everybody else could. But you just can't do that.

"And there's a problem with defining who is a drug dealer, who is a possible spy. For example, during the Nixon era, there are reports which are quite believable that the definition of 'Communist spy' or 'suspected Communist spy' was enlarged to include antiwar protesters during the Vietnam war.

"So I'm very concerned about weakening cryptography to help law enforcement or national security concerns. I remember Watergate all too well.

"The FBI says we just need to maintain the status quo. Well, the status quo as it is in 1980, let's say, or the status quo as it was in 1880, when they couldn't do any of this wiretapping? Technology gave them a tremendous source of information with court orders, which may be drying up now, but I don't think they're going to be able to stop the growth of technology here, and if they do it's going to be with great detriment to other people."

RSA's Bidzos adds: "Taking the very long view, the FBI's arguments sound to me like arguments they might have made back in the '20s and '30s—'We really can't build this interstate highway system—do you have any idea what kind of crime this will facilitate? Do you realize people will transport stolen goods across state lines if we build these interstates?' Well, yes, but, you're missing the big picture—and I think that's what's happening here."

A parallel issue revolves around export controls on robust encryption. Currently, for example, the version of Lotus Notes that's sold in the US contains far stronger encryption than the one that's allowed to be sold overseas. The computer and communications industries would like to see these controls disappear because more and more of their foreign customers are demanding strong security features, but so far little progress has been made along that line.

Bidzos thinks he understands why. "I used to say, 'Export controls are stupid because they don't accomplish what they're supposed to accomplish.' If somebody were to say that to me today, I'd say, 'Oh. Pray tell, what were they supposed to accomplish?'

"They are not trying to control this technology, because if that's what they're trying to do, they've failed. What they're trying to do is achieve some objective the government has. I suspect I know what that objective is—it's not as obvious as one may think.

"Is the proliferation of free crypto software a big threat to NSA's ability to snoop? I don't think that's really very much of a threat. I think what they're really afraid of is something very different.

"Let's look at a community of people that uses cryptography. There's tons of software out there, and it's not just recent. Does it look like more and more people have been using it lately? I don't know about that.

"A guy came into my office about two years ago and said, 'Gee, Bidzos, this is kind of interesting, you're working with all these desktop computer guys. Let me ask you something—if you take all the mailboxes that you provide secure email for, what do you get? A million? Could it be five million? Well, let me tell you something. Last year alone in this country, ten million fax machines were sold. And of course, for telephones it's much, much larger.' There's some outrageously large number of faxes sent over the Atlantic every day. Very few of them are secure.

"What I think the government's trying to do is collect intelligence. Their job isn't really as simple as just collecting everything that moves; their job is finding needles in the haystack. They have to target people, they're looking for something that's specific. That's the needle. And if you picture black lines on a map going over the Atlantic as encrypted traffic, that's the haystack.

"So if you have a few hundred or a few thousand or even a few tens of thousands of people sending little email messages back and forth, you know the email address, you know where they're going, so who cares? If there's something there that you're interested in, you zero in on it and you go get it. That doesn't make the haystack so big that your mission of finding the needles becomes impossible. If you had every telephone call and every fax machine sending encrypted data over the Atlantic, the haystack now becomes so large that your job of find-

continued on page 122

BAR CODE IS OUR SPECIALTY

INPUT AUTOMATION, INC.

The single source for all your bar code system needs: hardware, software, consulting and system design. Our philosophy is based on two principles: high-quality industrial products, and the best technical support available.

DESIGN AND CONSULTING

To create your optimal solution, an Input Automation consultant will design a complete system, and then recommend equipment that fills your exact needs.

INPUT automation, inc.
Authorized Value-Added Distributor

We will not be satisfied until our bar code system meets your demanding standards.

Call today for free info & product information
(Dealer inquiries welcome)

Call for an appointment to see our Showroom

Southern California
Tel: (310) 539-3598
Fax: (310) 530-2849
Tel: (714) 859-9223

Northern California
Tel: (510) 685-6563
Fax: (510) 682-6061

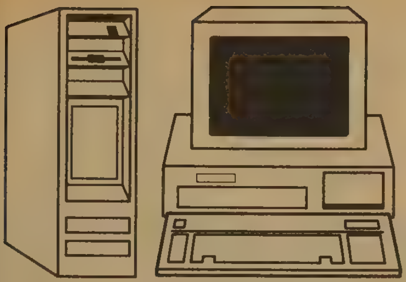
Bar Code Label Printers, Software, and Supplies

Laser Scanners. Omnidirectional, hand-held/hands-free, fixed mount.

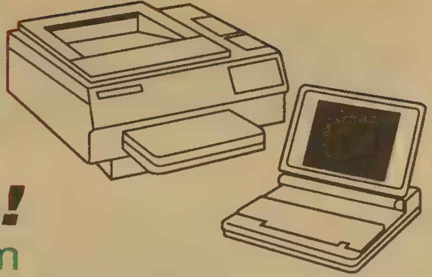
Panasonic Portables. Recognized the world over for quality

Welch Allyn bar code readers/scanners. Over 15 years leadership in bar code manufacturing.

©1992 Copyright Input Automation, Inc. All rights reserved. All product names mentioned are trademarks of their respective manufacturers. Input Automation, Inc. recognizes these trademarks.



CompuMart



Quality, Service and Value!

Experience it in our Ultra Modern Showroom

COMPLETE PC SYSTEMS BY OPTIGOLD

ALL SYSTEMS ARE FCC CLASS B, 14" SVGA MONITOR INCLUDED

486DX-33/4M/130MB HD	$1,340
486DX2-66/4M/130MB HD	$1,430
486DX-50/4M/130MB HD	$1,505
486DX2-66/4M/130MB HD	$1,600

ADD $100 FOR LOCAL BUS SYSTEM

386SX-25/2M/80MB HD	$ 750
386DX-33/4M/80MB HD	$ 930
386DX-40/4M/80MB HD	$ 970
486SX-25/4M/80MB HD	$1,025

NOTEBOOK PC

CHAPLET	386SX-25/2MB/80MB HD	$1,195
	386SL-25/4MB/80MB HD	$1,350
CHICONY	386SX-20/1MB/60/80 HD	$ 895/ 949
	386SX-25/2MB/5MB 80 HD	$ 995/1,185
	386SXL-25/2MB/4MB 80 HD	$1,125/1,225
TOSHIBA 4400C		$3,625

DRIVES

Conner	80MB IDE	$204
	120MB IDE	$249
	212MB IDE/ SCSI	$349
Fujitsu	520MB IDE/ SCSI	$859
Quantum	80MB IDE	$204
	120MB IDE	$249
Maxtor	80MB IDE	$204
	130MB IDE	$254
	213MB IDE	$349
	245MB IDE	$384
	340MB IDE/ SCSI	$579
Seagate	80MB IDE	$204
	130MB IDE	$249
WD	80MB IDE	$204
	212MB IDE	$249
Sysgen	Easyflloppy 3.5E w/ kit	$185
	Mobil Disk Ext 40MB	$379
	Portable 3.5"	$225
	Portable 5.25"	$225
SyQuest	SYDOS-44I w/ kit	$460
	SYDOS-44E w/ kit	$510
	SYDOS-88E w/ kit	$780
Iomega	Floptical 21MB	$409

CONTROLLERS

Always	IN 2000		$182
Adaptec	1522K	SCSI	$159
	1542BK		$255
Ultrastor	15C	IDE	$199
	14F	SCSI	$209
	34F	VLB/ SCSI	$299

MODEMS

Hayes	Optima 14.4 + Fax Ext	$449
	Optima 14.4 Ext	$419
Intel	SatisFAXtion 400 Int/ 400E Ext	$399/$439
Practical P	PM14400FX Int/FXSA Ext	$359/$389
	PM14400FX Pocket Modem	$359
	Fax Me	$184
US Robotics	Sporter 14.4 Int/ Ext	$299/$329
	Sporter 14.4+Fax Int/ Ext	$339/$359
	Worldport 9600 Pocket	$339
Zoom	14.4 + Fax Int	$235
	14.4 + Fax + Winfax Ext	$285

MONITORS

NEC	3FGx	15" Mulsync .28 NI Flat	$ 639
	4FG	15" Mulsync .28 NI Flat	$ 739
	5FG	17" Mulsync .28 NI Flat	$1315
	6FG	20" Mulsync .28 NI Flat	$2345
Hitachi	CM1785	17" .28 NI Flat	$ 919
Sony	1304S	14" .25 NI	$ 575
Viewsonic	VSC6E	14" .28 NI	$ 349
	VSC7	17" .28 NI	$ 995
	VSC8	20" .31 NI	$1575

All prices are subject to change without notice.

MULTIMEDIA

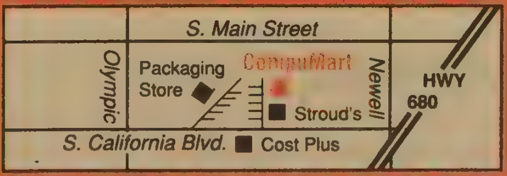
Creative Lab	Sound Blaster	$ 89
	Sound Blaster Basic	$149
	Sound Blaster Pro	$175
	Sound Blaster Pro 16 ASP	$239
	Video Blaster	$349
	Multimedia Upgrade Kit (int)	$539
Media Vision	Pro Audio Spectrum 16	$198
	Fusion CD 16E	$519
NEC	CDR-37 Portable CD-ROM	$425
	CDR-84 Internal CD-ROM	$539
	CDR-74 External CD-ROM	$599
	CD Express Kit w/ CDR-27	$429
Sony	CDU31A Internal CD-ROM	$225
	CDU541 Internal CD-ROM	$425
	CDU7211 External CD-ROM	$525
Texal	DM-3024 Internal CD-ROM	$415
	DM-5024 External CD-ROM	$515
Toshiba	3401B Int 200ms CD-ROM	$469
New Media	WatchIt TV	$295
Logitec	FotoMan	$529
	SoundMan 16	$179
Microsoft	Sound System	$199

NETWORK

3COM	509 Etherlink III TP/ Coax	$139
Artisoft	Lantastic 2mbps Startkit	$325
	Lantastic AE-2 Startkit	$449
Intel	Ethernet 16 TP/ Coax	$131
Netware	Netware Lite	$ 59
	Netware 3.11 5 Users	$549
	Netware 3.11 10 Users	$1249
	Netware 3.11 20 Users	$1699
SMC	Elite Ethernet Plus 16 Coax/ TP	$ 135
	Elite Ethernet 16 Combo	$ 163

VIDEO BOARDS

ATI	Wonder XL24 1MB	$155
	Graphic Vantage 1MB	$235
	Graphic Ultra 1MB	$290
	Graphic Ultra + 1MB/ 2MB	$299/$349
	Graphic Ultra Pro 1MB/ 2MB	$449/$599
Diamond	SpeedStar 24X 1MB	$179
	Stealth HI-Color VRAM 1MB	$220
	Stealth VLB 1MB	$199
	Stealth Pro VLB 1MB/ 2MB	$255/$385
	Viper 2MB VLB	$389
Orchid	Fahrenheit 1280+ 1MB	$194
	Fahrenheit VA 1MB	$224
	Fahrenheit VA/VLB	$254
Genoa	8500 VL	$175
Tseng	ET4000 VLB	$124



SCANNERS

Caera	Typist Plus Graphics	$ 299
HP	ScanJet IIC	$1399
Logitech	Scanman 32	$ 135
	Scanman 256 w/ Catchword Pro	$ 345
	Scanman Color Hand Scanner	$ 554
Tamarack	ArtiScan Flatbed Scanner Color 600DPI	$1050
	ArtiScan Flatbed Scanner Color 800DPI	$1250
Microtek	Scanmaker II Color 600DPI	$ 849

PRINTERS

Citizen	GSX-230/ GSX-240	$265/$ 315
	PN-48	$ 285
Cannon	BJ-10EX/ BJ20	$299/$ 369
	BJ200	$ 359
Panasonic	KX-P118i/ KX-P2180	$149/$ 159
	KX-P2123/ KX-P2124	$239/$ 329
HP	Deskjet 500	$ 395
	Deskjet 500C/ 550C	$525/$ 725
LASER PRINTER		
HP	IIP+/ IIIP	$775/$ 975
	4/ 4M	$1419/$1995
IBM	Lexmark 4019E	$ 775
Okidata	OL400	$ 610
NEC	Model 95	$1395
Panasonic	KX-P4410/ KX-P4430	$629/$ 885
QMS	PS410	$1375

SOFTWARE

Aldus	Pagemaker for Windows	$485
Borland	Borland C++ 3.1 & Application Frame	$485
	Paradox for Windows	$129
	Dbase IV	$459
	Quattro for Windows	$150
Corel	Corel Draw & CD for Windows	$365
Lotus	1-2-3 for Windows	$299
	AmiPro for Windows	$265
	Freelance for Windows	$335
Micrografx	Picture Publisher	$327
	Graphics Works	$199
Microsoft	Excel for Windows	$299
	Office for Windows	$459
	Word for Windows	$299
	Windows 3.1 Upgrade	$ 49
	Workgroup	$ 68
Symantec	Norton Desktop	$109
	Norton Anti-Virus	$ 87
	Norton Backup	$ 88
WordPerfect	Wordperfect 5.2 for Windows	$249
	Wordperfect 5.2 for Win Upgrade	$ 39
ChipSoft	Turbo Tax	$ 48

TAPE BACK-UP

Colorado	DJ-10	120MB Int	$165
	DJ-20	250MB Int	$235
	Trakker	120MB Printer port	$349
	Trakker	250MB Printer port	$419

(510) 946-1234

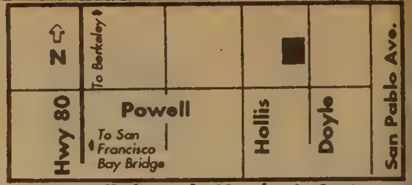
1320 S. California Blvd., Walnut Creek (Across from Cost Plus, next to Stroud's)

Monday-Saturday: 9:30-8:00, Sunday: 12:00-6:00

Over 5,000 Software, Printers, Monitors, CD-ROM, Network Products, Computer Books, Magazines In Stock.

MICROTECH International

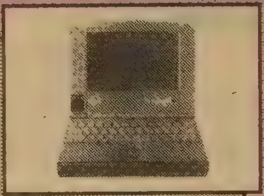
Since 1986
Complete Service Center



Centrally located—15 min from San Francisco
5 min from Oakland—5 min from Berkeley

APPLE® POWERBOOKS & ACCESORIES

Apple® Macintosh Duo™ 210 4/80



- 25MHz 68030 Processor
- 4MB RAM exp. to 24MB
- Built in support for 256 colors
- Can be used as comptete Desktop w/Duo Dock
- Lightest weight Notebook 4.2lb.

CALL FOR OTHER MODELS
$1999

PowerBook Duo™ Docking Station	$CALL
PowerBook Duo™ Mini Dock	$549

NEW COLOR PowerBook™ 165C 4/80 4/120

- 33MHz 68030 Processor
- 4MB RAM exp. to 14MB
- 9" 256 Color Display
- External Video Support up to 16" Display

CALL FOR PRICES & AVAILABILITY

PowerBook Duo™ Rechargeable Battery	$655
PowerBook Duo™ Battery Recharger	$115
PowerBook Duo™ AC Adapter	$60
PowerBook Duo™ Express Modem	$315

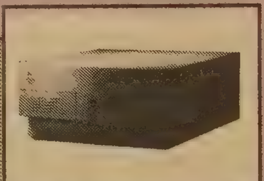
Apple® Macintosh® PowerBook™ 145/160/180

- 4MB RAM
- 1.4MB Superdrive
- Remote access capabilities
- Runs virtually all Macintosh programs

LOWEST PRICES GUARANTEED

PowerBook™ Rechargeable Battery	$66
PowerBook™ Battery Recharger	$86
PowerBook™ Fax/Data Modem	$220
PowerBook™ DOS Companion	$210

Apple® Macintosh® IIvx 4/80 4/230

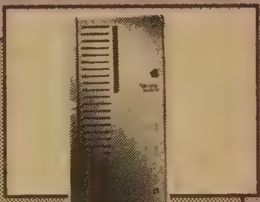


- 32MHz 68030 Processor
- 1MB VRAM supports up to 32,000 Colors on board
- Operates at twice the speed of ordinary CD-ROM
- 3 NuBus™ slots for expansion

Keyboard & Monitor sold separately

$1649/1949

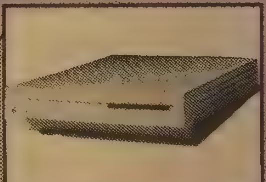
Apple® Macintosh Quadra™ 800 8/230



- 33MHz 68040 Processor w/ Math Co.
- 8MB RAM exp. to 136MB
- Built-in color support for all Mac Displays
- Supports internal CD-ROM Drive
- Built-in Ethernet Connector

$3899

Apple® Macintosh® LC III 4/80 4/160

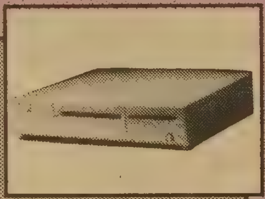


- 25MHz 68030 Processor - 32 bit data bus twice as fast as LC II
- 4MB exp. to 36MB
- Built in color support up to 16" color displays
- RAM Disk for fast data access

Keyboard & Monitor sold separately

$1249/1399

Apple® Macintosh Centris® 610/650



- 68040 Processor -32-bit data bus up to twice as fast as IIci & IIvx
- 4MB RAM exp. to 68/132
- Built in color support for all Apple® displays
- Optional Onboard Ethernet
- Ram Disk for fast data access

Keyboard & Monitor sold separately

Starting from
$1649

Apple® Macintosh® Color Classic® 4/80

- 16MHz 68030 Processor
- 4MB RAM exp to 10
- 10" Color display w/256 color, upgradable to thousands of colors
- Compact & portable
- Keyboard sold separately

$1329

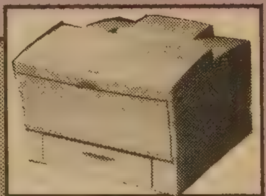
Apple® Macintosh® 14"/16" RGB Displays

- Supports 640x480 resolution on 14" and 832x624 on 16"
- Produces bright and vibrant colors on high contrast screen
- Works with Mac built in video

CALL FOR PRICE/ AVAILABILITY

NEW APPLE® PRINTERS

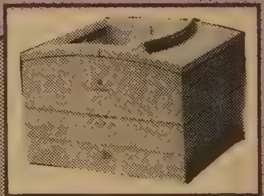
Apple® LaserWriter® Select 300



- Ideal for Mac & Windows Environment
- 39 Scalable True Type™ fonts
- Optional 800 page sheet feeder
- 5ppm

$749

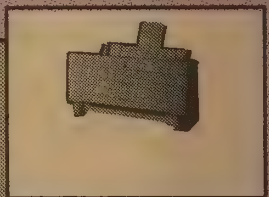
Apple® LaserWriter® Pro 600/630



Prints up to 600 dpi
- 8MB of RAM
- Supports MAC, MS-DOS, Windows Environment
- 69030-25MHz Processor
- 4MB exp. to 32

$CALL

Apple® Stylewriter® II



- 360dpi
- 11MB Memory
- 39 True Type™ Fonts
- Multi purpose envelope & paper tray

$325

Authorized** Dealer For: AST COMPAQ NOVELL radius NEC Avanti

Authorized Reseller

0% FINANCING AVAILABLE FOR 90 DAYS

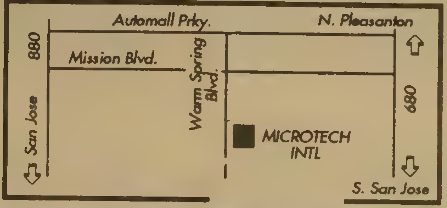
Apple, the Apple Logo, Macintosh, Stylewriter, & LaserWriter are registered trademarks of Apple Computer Inc. PowerBook, Powerbook Duo, Macintosh Quadra, & Macintosh Centris are trademarks of

EMERYVILLE

5865 Doyle Street
Emeryville, CA 94608
TEL: (510) 658-1433
FAX: (510) 658-7339

FREMONT

47000 Warm Springs Blvd. #8
Fremont, CA 94539
TEL: (510) 226-8650
FAX: (510) 226-8652



Hours:

Mon-Fri 9-6
Closed Sat & Sun
Closed Fri 1-2

THE BEST NOTEBOOKS IN THE MARKET

SPECIAL Toshiba Notebook T1800/1850

- 386-25MHz Processor
- 4MB RAM exp. to 12MB
- 80MB Hard Drive
- 256 Grayscale display
- Coprocessor support

$SPECIAL

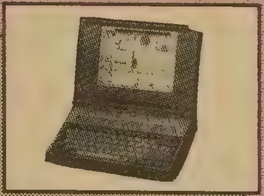
COLOR Notebook Super Sale Toshiba T1850C

Satellite
T1850C

- 4MB RAM expandable to 12MB
- 25MHz 803867 processor
- Excellent Adjustable viewing angle display 256K Colors on 1850C
- CoProcessor i387SX-25 slot
- Permits easy data exchange with external devices

$2399
Limited Time

Toshiba's New T4400C Color Notebook 120/200



- 80486 Processor
- 4MB Standard RAM up to 12MB
- World Class Quality Screen
- Optional Modem Slot

CALL FOR PRICE/ AVAILABILITY

AVANTI Notebook Complete Package 486slx-25 w/Math Co.

- 4MB RAM/ 120MB HD
- 9600/2400SR Fax Modem
- Pre Installed DOS 5.0 & Windows 3.1
- Notebook carrying case
- Enhanced keyboard

CALL FOR OTHER MODELS!
$2299

AVANTI 425 Color Notebook

- 486SLC-25MHz
- 4MB exp. to 12MB
- 120MB HD
- 8.5" Color Display
- Built in trackball

$BEST$ PRICE

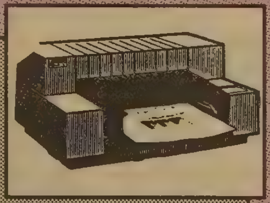
IBM TOP SELLER ThinkPad 700/700C

- 80486SLC w/25MHz
- 4MB RAM and 120MB HD
- Bundled Software w/DOS & Prodigy
- Supports external VGA

CALL FOR OUR SPECIAL PRICES

HEWLETT-PACKARD PRINTERS

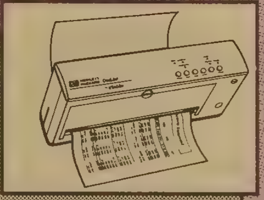
HP InkJet Printer F/ Macintosh® DeskWriter DeskWriter C DeskWriter 550C



- 3 Year mfg. warranty
- Extremely quiet operation
- 300 dpi printing
- 7 ppm in best mode 550C

$CALL

HP DeskJet Portable

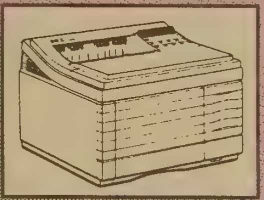


- 300 DPI, Laser Quality
- Lightweight 4.4 lbs
- Built-in fonts
- Prints up to 100 pages on battery power

Battery $49
Paper Feeder $89
Carrying Case $89
Rapid Recharger $89

$379
$75 REBATE with any accessory purchase

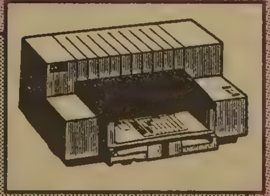
HP LaserJet 4/4M



- 600 dpi performance
- RISC-based processor switches between Adobe PS and HP PCL5
- 2MB/6MB standard memory
- 8 ppm printing speed
- Supports all networks with HP Jet Direct card
- Total printing solution

IN STOCK

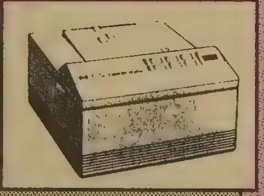
HP InkJet Printer F/PC DeskJet 500 DeskJet 500C New DeskJet 550C



- 3 Year mfg. warranty
- Extremely quiet operation
- 300 dpi printing
- 7 ppm in best mode 550C

Price after Mfg Rebate
$365/479
679

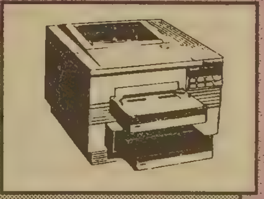
HP LaserJet IIIP Plus/IIIP



- 300 dpi enhanced printing
- 4 ppm printing speed
- Compact desktop size easy to fit in tight space
- SR/Par support F/IIIP
- 14 resident fonts
- Fully compatible and easy to setup

$745/
899

A True Laser Printer for Hi-Volume Printing HP LaserJet IIIsi



- 17 ppm with 300 dpi resolution
- Optional duplex printing
- Supports SR/Par/LocalTalk on IIID
- 1-Year on-site warranty
- Wide variety of built-in fonts

CALL FOR BEST PRICE

HEWLETT PACKARD TOSHIBA IBM TEXAS INSTRUMENTS OKIDATA

**** Apple/IBM Authorization Emeryville Store Only.**

PRICES REFLECTED A CASH DISCOUNT
ADD 3% FOR TERMS/CREDIT CARDS

OR LOW MONTHLY PAYMENTS

All prices are subject to change without notice.

Apple Computers, Inc.

continued from page 118

ing the needles becomes impossible, you can't guarantee your customers that you can deliver anymore.

"So if their customers are in the White House, the State Department, the military, whoever, right now they probably deliver a lot of juicy stuff."

He envisions the NSA briefing the new president. "'Now Bill, who makes more important decisions than you do? Nobody. Who makes decisions that affect the lives of more people than you do? Right again, nobody. By the way, this is the intelligence briefing you get from us every morning, and you'll find the transcripts of what so-and-so said to so-and-so on page seven really interesting. You'll find out what the Serbian military commanders are hearing from their bosses. We're the crown jewels. We're NSA. This is what we give you.'

"A privacy advocate walks in and says, 'Bill, on the streets of Moscow you can buy cryptography. This is ridiculous. This isn't working. Let's fix it.' The NSA guy says, 'Bill. Let me tell you what a joke this is. Sure you can buy some software on the streets of Moscow. The day we lift export controls, the amount of encrypted traffic increases a thousandfold. If you lift export controls in any other country, the impact is negligible—how many Microsofts are there in Europe? But if you lift them in the US, encrypted traffic increases a thousand fold.

"'So Bill, I don't care what you can buy on the streets of Moscow; the fact is that all these fax machines and telephones and computers having this built-in idiot-proof, so anybody can use it, will increase the amount of traffic we have to deal with to the point where we can't give you these intelligence reports any more. You won't get it.'

"Now we don't know what Bill gets, but we have to assume it has some value. History is on the side of the guy from NSA. What we're trying to accomplish by this policy of keeping export controls on US companies is very effective. I don't think Clinton will say, 'No, it's more important that Apple be able to sell strong encryption in France.'

"I predict that in the next four years IBM will go to the White House or Congress to argue over export law, over the NSA's and the Department of State's head. And they'll win their argument, and the grounds on which they'll win it will be national security.

"Because IBM will say, 'We've got a billion-dollar mainframe sale opportunity to the government of Germany, and security has now become one of the top three items. Fujitsu is in there, and they want to sell this equipment, and they're going to give the customer exactly the security they want. If you tell us no, thirty thousand jobs will get cut from IBM tomorrow.' NSA will try to say no, but they won't be allowed to say no under those circumstances.

"I would argue that we need to anticipate that's going to happen. Then I would argue that we start thinking about how we're going to behave then, and plan various stages of release."

What seems certain is that changing technology and customer demands are forcing a reexamination of long-entrenched policies, and a dialogue aimed at reaching a reasonable compromise among conflicting interests.

Says Bidzos, "NSA's definition of national security is that we protect their ability to gather intelligence by keeping privacy out of everyone's hands. In the future, the definition of national security, for a country that is one of the most automated in the world, will be, in fact, giving as many people as possible good encryption, because we're the ones that will be vulnerable.

"Whatever possible intelligence is lost to NSA by privacy being everywhere has to pale in comparison to the benefits of securing this automated society and protecting it from things like electronic terrorism and electronic espionage. If somebody could stop the wire transfer system in this country for about 48 hours, you'd have absolute chaos. Seventy-five percent of the money in this country is moved and stored in those computers. The definition of national security is changing.

"All these things are happening quicker than these people want to admit, and they should be engaging people like us, privacy advocates, people in the encryption industry, in discussing what we're doing and why. I would like to see them have to make their case. I'd like to see a national policy review that involves every interested party—law enforcement, NSA, industry, individuals, other parts of government. Get all these parties together and spend the time to get some consensus on what privacy policy should be. Then we can go ahead and implement it.

"Once the policy makers decide on what the policy should be, implementing it is absolutely trivial, but nobody's decided what it should be." ■

486
DX2-66MHz
'WORKSTATION'
486SX-25
486DX-33
486▮X2-50/66

Quality, Savings, Service.... Directly from Manufacturer

AMREL 486 UPGRADEABLE NOTEBOOKS

Starting as low as...

$1995

ADD IT ALL UP...
- 30-DAY MONEY-BACK GUARANTEE
- IMMEDIATE SHIPPING
- ONE FULL YEAR PARTS & LABOR WARRANTY
- 48-HOUR SERVICE TURN AROUND TIME
- TOLL FREE TECHNICAL SUPPORT

- 4MB upgradeable to 16MB RAM
- 80MB, 120MB, 180MB, Hard Drive
- 1.44MB 3 1/2" Floppy Drive
- 10" VGA LCD with 64 gray shades
- Simultaneous external SVGA color display
- Inverted T cursor, dedicated Page keys
- 150 pin Docking Station Interface
- Serial, Parallel, Keyboard ports
- 2.5+ hours battery operation
- Suspend/Resume mode, Intelligent power saving
- MS DOS 5.0 & Windows 3.1
- Deluxe leather carrying case
- Internal Fax/Modem Option (MNP5, 9600/2400)

AMREL CPU Modules

AMREL MLT486 Notebook computers feature state-of-the-art plug in CPU Modules for fast and economical proccessor upgrades. Increase your computing power by simply replacing the AMREL CPU Modules. CPU Options include 386DXL33, 486DX-33, 486SX-25, 486DX2-50 MHz.

AMREL Docking Station

AMREL Docking Station delivers the power and expandability of desktop PCs to your MLT486. Features include two 16-bit ISA slots, internal Fax/Modem, RS232 port, parallel port, SVGA, external keyboard port and room for a 5 1/4" drive.

AMREL Trackball

Convenient built-in trackball eliminates the need for ackward add-on devices.

Fax: (818) 575-0801 • 1-800-882-6735

VISA

AMREL TECHNOLOGY INC.
9952 E. Baldwin Place, El Monte, CA 91731

Lan Professional

Novell Labs Tested & Approved* ™

ETHERNET PACKAGE SALE

6 PIECES PER PACKAGE

Offering The Best Price and Uncompromising Quality

•16-BIT COAX ETHERNET ADAPTER 6 Pack	**$449**
•16-BIT 10BASE T ETHERNET ADAPTER 6 Pack	**$469**
•16-BIT COMBO ETHERNET ADAPTER 6 Pack	**$499**

CALL FOR DEALER & RESELLER DISCOUNT

VALUE LOADED:

**Comes with 8-user Da Vinci eMail, a dealer value of $195

**Comes with Diagnostic program that makes trouble-shooting a cake walk

**Supports 11 interrupt channels

**Supports all major NOS, such as:

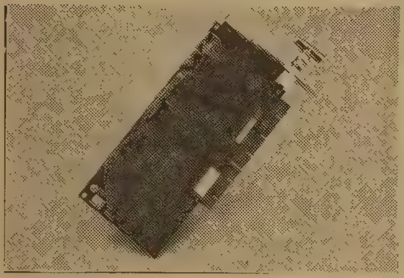
- -CBIS Network OS
- -Microsoft TCP/IP
- -Artisoft Lantastic
- -SunMicro PC NFS
- -3COM 3+Open
- -Microsoft LAN Manager
- -IBM LAN Server
- -Banyon Vines
- -FTP PC/TCP
- -Tiara 10Net
- -Novell Netware and Netware Lite

**Experienced CNE engineers, on-line technical support

**Supports complete network product line from ARCnet, Ethernet, to Token Ring

Novell Labs Tested & Approved

• LIFETIME WARRANTY! • 30 DAYS MONEY BACK GUARANTEE!

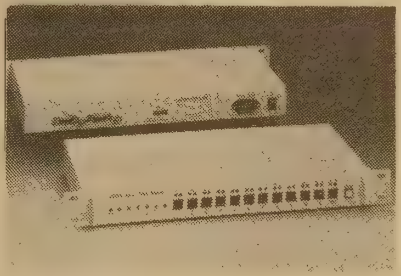


EN-32: 32 Bit EISA Ethernet Board	$295

ISA-BUS 8 & 16 Bit Ethernet Board

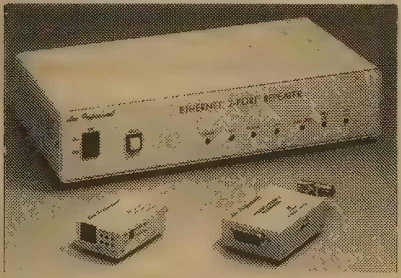
1000C	$69
2000C	$79
2000T	$85

1000A: 8-bit Combo Ethernet	$80
2000A: 16-bit Combo Ethernet	$90

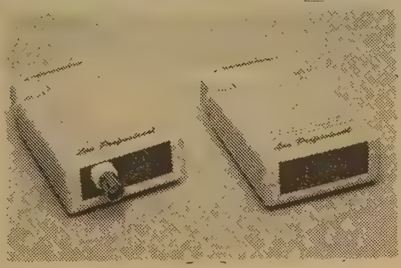


ER-6390: 8-Port 10T Hub	$295
ER-6391: 12-Port 10T Hub	$540

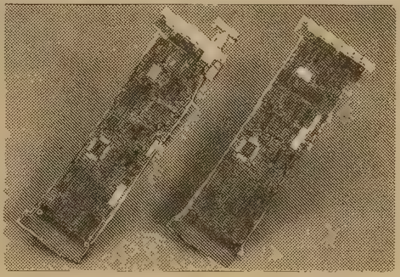
• LIFETIME TECH SUPPORT WITH 3 ON-LINE CERTIFIED NETWARE ENGINEERS!



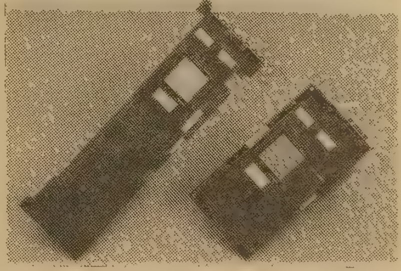
ER-3390: 2-Port Repeater	$379
ET-4000T/ET-4000B: AUI Transceiver	$65



EP-3000B: BNC Pocket Ethernet	$179
EP-3000T: 10T Pocket Ethernet	$179



EN-2C: PS/2 MCA Ethernet	$169
EN-2T: PS/MCA 10T Ethernet	$169



TK-7600: 4/16 Token-Ring	$400
TK-7600MC: 4/16 PS2/Token-Ring	$420

Novell Certified NetWare Engineer ™

We Are Committed to your LAN

LAN Manufacturer, 5 Years Experience and CNE Team

New Installation

Free on-site evaluation. Our professional services include cabling, hardware customization, software installation and working environment setup. System administration training provided.

LAN Upgrading/Expanding

We upgrade your existing network, no matter how small or old it is!

System Maintenance

Routine on-site maintenance. On-site trouble-shooting. Technical support Hot-Line.

Our CNE team, with the experience and expertise will not only keep your LAN in good working order but increase productivity!

EDIMAX®

3350 SCOTT BLVD., BLDG 9A, SANTA CLARA, CA 95054
SALES: (408) 496-1105/ TECH SUPPORT: (408) 988-6092
FAX: (408) 980-1530
DEALER INQUIRIES WELCOME: PRICES SUBJECT TO CHANGE W/O NOTICE
*SELECTED ITEMS NOVELL CERTIFIED

DEALER INQUIRES & CORPORATE PO'S WELCOME

Information Worlds Collide: Open Source Solutions

"The Reality Is That The Definition Of National Security Is Changing."

BY ROBERT DAVID STEELE

Flash Notice: Intelligence Community Becoming Intelligent. Suddenly, confronted by the disappearance of the monolithic Soviet threat, which has justified defense and intelligence budgets since the National Security Act of 1947 established the Central Intelligence Agency and related capabilities, the intelligence community has rediscovered unclassified information, or in its jargon, "open source intelligence" (OSCINT).

Admiral William Studeman, Deputy of Central Intelligence (center); with Mr. Paul Wallner, Open Source Coordinator for the Director of Central Intelligence (left), and Mr. Robert Steele, President of Open Source Solutions.

OSCINT has always been important to decision-makers, and even to intelligence. One story, going back to the founding of the Office of Strategic Services, has this young organization unable to fulfill all the requests for "secret" information. Their solution: two people in a room with the *New York Times.* Anything which could be answered from the *Times* was typed up, stamped "SECRET," and returned to the inquirer. Only those things which could not be answered from the *Times* were then considered for clandestine collection.

> *With the decline of the Soviet threat, and confounded by the proliferation of issues and targets it is not prepared to monitor, the intelligence community is taking a much closer look at open source intelligence as the "source of first resort."*

Since 1947, driven by a focus on the Soviet Union and the fact that much of what was of interest was behind the "iron curtain," US intelligence has devoted billions of dollars to developing highly sophisticated technical capabilities designed to monitor the Soviet strategic nuclear threat. Other issues and targets received only peripheral attention, to the point that recent requirements for Third World intelligence, for instance, in Somalia, could not be met from within intelligence community databases.

Now, with the decline of the Soviet threat, and confounded by the proliferation of issues and targets which it is not prepared to monitor, the intelligence community is taking a much closer look at OSCINT as the "source of first resort." There are two reasons OSCINT is now critical: first, it is frequently the only available source of information of emerging threats and opportunities that have not been previously scrutinized by the intelligence community; second, in a declining fiscal environment it represents an enormously cost-effective means of meeting policymaker requirements without incurring unnecessary expenses associated with technical collection and clandestine collection.

The reality is that the definition of national security is changing. With the strategic nuclear threat all but gone, the environment, and related demographic crisis, stands to become the number-one national security problem, and this is a problem for which OSCINT is ideally suited. Policymakers also value OSCINT because it can be easily disseminated to foreign counterparts, members of the media and politicians, and the private sector.

With the appointment of Mr. Paul Wallner as the Open Source Coordinator, the intelligence community finally has a focal point for coordinating its investments in online databases and other public information categories. The issue of whether the intelligence community will begin making available unclassified information to the public, expanding on its highly regarded *CIA World Fact Book,* for instance, is not yet being addressed.

Also to be addressed, perhaps by the Advanced Information Processing and Analysis Steering Group led by Ms. Terry Kees, is the issue of how information handling research and development within the intelligence community might better be coordinated and integrated with the efforts underway in the private sector and sponsored by such organizations as the Defense Advanced Research Projects Agency (DARPA). Currently, in the absence of an R&D "czar" or a national strategy for information handling, there is enormous redundancy and even conflict among various intelligence community information handling organizations.

Simultaneously, businesses around the

Continued on page 272

Cipher Codes And Freedom Of Information

Privacy Advocates And The NSA

BY MICHAEL ROBIN

"Clearly there's a whole set of civil liberties and privacy interests whose main objective is to increase privacy for individuals, not erode privacy for individuals, as new technologies come into play."

—John Gilmore

As it becomes commonplace for data to be stored on computers and transmitted across phone wires, data encryption for digital information is drawing new interest from individuals, manufacturers, and the government. Issues of security, privacy, and confidentiality affect many aspects of daily life, including personal financial records, electronic mail, and business transactions.

Among the different constituencies, a variety of issues comes into play. The national security community, which works with codes and encryption, does not want to see foreign spies gain an advantage through the use of encryption. Similarily, the law enforcement community does not want to see technologies that might undercut its powers and abilities become widely available. Much of the mathematical community, at this point, seems content to be left alone to explore the theoretical and more esoteric issues of cryptanalysis and prime number theory.

However, another group is becoming involved in issues of cryptography—civil liberties and privacy activists, who see a larger issue at stake. John Gilmore, cofounder of the Electronic Frontier Foundation and cofounder of Cygnus Support, defines the issue as "whether people will be allowed to use [encryption] to protect their privacy. And that is much larger than the computer context."

CRYPTANALYSIS AND THE NSA

Cryptanalysis, the study of deciphering or breaking a code, is complementary to developing secure codes. Gilmore explains, "The primary way that crypto systems fail, after you've invented one and tried to deploy it, is some ingenious way of getting around its protections. The cryptanalysts, people who invent codes, need to know all the known ways of getting around crypto systems in order to put defenses in when they build a new one."

The National Security Agency (NSA), whose job is to provide secure communication and intelligence for the military and diplomatic corps, excels in cryptanalysis. The NSA has been well funded, albeit secretly, by the US government, in order to study, design, and break codes. Some of the world's best cryptanalysts have worked at the NSA and, Gilmore suggests, it is probable that some of the best books and encryption technologies have been created by the NSA.

It's only a guess what encryption technologies the NSA may have; it withholds this knowledge from the public, and consequently, the marketplace. According to Gilmore, "They have much better crypto systems than we have in the public for privacy, for authenticity—all of this is built into military and diplomatic gear. None of it can be used to further the privacy of the citizen, to make the society as a whole less susceptible to foreign intelligence or to underhanded competition."

> **Learning that the legally obtained documents he now had were classified changed the situation for Gilmore:** *"We went, 'Well, we've just got official notice that these documents are classified. We have copies. If I give a copy to my friend, I'm breaking this espionage law, but I got this document from the library and it's public domain.'"*

FOIA

In 1966, Congress passed the Freedom of Information Act, FOIA, to provide the public greater access to information held by the government, including information about government practices and decision making.

In July, 1992, Gilmore filed a FOIA request with the NSA for a set of cryptologic books: *Military Cryptanalysis, Part III* and *Part IV*, by William Friedman, written around 1939–1941; and *Military Cryptanalysis, Parts III–IV*, by Friedman and Lambros Callimhos, written a decade later. Initially, there were two reasons for the FOIA request. "First," said Gilmore, "we thought the textbooks were somewhat interesting, and second, the NSA has a history of not following the guidelines of the Freedom of Information Act, particularly around time limits." He wanted to see if there was a way to get this government agency to follow the law.

Parts I and II of each book had been declassified and were available to the public. At the time of the request, the status of the remaining parts was not definitely known—there was discussion within the crypto community that the books had been declassified under President Carter, then reclassified under President Reagan as part of an Executive Order that provided for reclassification of documents available to the public if they could "reasonably recover" all copies that were circulating.

CRYPTO BOOKS AND NATIONAL SECURITY

Gilmore felt that these cryptanalysis books contained nothing that needed to be classified. Putting them in context, he explains: "Brute force attack means trying all possible keys. But there are an awful lot of cipher systems where information leaks through the cipher. For example, a very common kind of cipher for many years was one that operated on letters—each letter would be transformed

continued on page 211

Copyright © 1993 by Michael Robin. All Rights reserved.

BUY DIRECT FROM FACTORY & $AVE

Best Prices and Best Services

MOTHERBOARD w/CPU

Mb 386sx33MHz	$95
MB Opti 386sx40MHz w/ 16KB Cache	$135
MB 386-40MHz w/ 64KB Cache	$155
MB 486sx25MHz w/ 128KB Cache	$305
MB 486sx33MHz w/ 128KB Cache	$328
MB 486DLC-33MHz w/ 64K Cache (Cyrix CPU)	$278
MB 486DX-33MHz w/ 64K Cache (Intel CPU)	$418
MB 486DX2-50MHz w/ 64K Cache	$528
MB 486DX-50MHz w/ 64K Cache	$558
MB 486DX2-66MHz w/ 64Kb Cache	$658
MB Opti Series Vesa LB 386DX-40MHz w/ 256K	$238
MB Vesa LB 486SX-25MHz w/ 128K	$318
MB Vesa LB 486SX-33MHz w/ 128K	$338
MB Opti Series Vesa LB 486DLC-40MHz w/ 128K	$398
MB Opti Series Vesa LB 486DLC-33MHz w/ 128K	$328
MB Vesa LB 486DX-33MHz w/ 128K	$438
MB Vesa LB 486DX2-50MHz w/ 128K	$558
MB Vesa LB 486DX-50MHz w/ 128K	$588
Mb Vesa LB 486DX2-66MHz w/ 128K	$688
Micronic MB Vesa LB 486DX-33MHz w/ 256K	$778
Micronic Mb Vesa LB 486DX2-66MHz w/ 256K	$1035

INTERFACE CARDS

IDE Controller 2HD & 2FD	$13
IDE Controller 2HD & 2FD (2s, 1p, 1g)	$17
IDE Caching Controller w/ 512Kb < 0.3ms Fast	$145
Adaptech 1522BK / 1542BK / 1542B	$155 / $238 / $195
Generic IDE Controller w/ 2s, 1p, 1g (Vesa LB)	$55
DTC 2270 IDE Controller w/ 2s, 1p, 1g (Vesa LB)	$95
Promise IDE Cache Controller (Vesa LB)	$245
Ultrastro 34F CSCI Cache Controller (Vesa LB)	$293

HARD DISK & FLOPPY DRIVE

40Mb 28ms IDE	$133
60Mb 18ms IDE	$165
105Mb 18ms IDE	$198

CONNER

84Mb 19ms IDE (CP30084)	$178
170Mb 17ms IDE (CP30174E)	$255
250MB 14ms IDE (CP30254)	$338

FUJITSU

520MB 12ms SCSI (M2624FA)	$848
1.2GB 14ms SCSI (M2266SA) Full Height	$1278
1.2GB 10ms SCSI (M2694SA) 3.5"	$1585
2.0GB 11ms SCSI (M2652SA) Full Height	$2085

Maxtor

130MB 15ms IDE (Maxtor 7120A)	$218
213MB 15ms IDE (Maxtor 7213A)	$318
213MB 15ms SCSI (Maxtor 7213S)	$365
340MB 15ms SCSI (Maxtor LXT340S)	$568

Quantum

245MB Fast IDE 256Kb Cache (LPS240A)	$365
245MB SCSI 256Kb Cache (LPS240S)	$385
425MB SCSI 256Kb Cache (PD425S)	$798
525MB SCSI 256Kb Cache (LPS525S)	$895
1.2GB SCSI 512Kb Cache (P1225)	$1485

WESTERN DIGITAL

120MB IDE 14ms (WD2120)	$208
170MB IDE 14ms (WD2170)	$255
213MB IDE 12ms (WD2200)	$308
250MB IDE 12ms (WD2250)	$338
340MB IDE 12ms (WD2340)	$458

TEAC

1.2Mb Floppy Drive (TEAC)	$55
1.44Mb Floppy Drive (TEAC) w/ Bracket	$55
Other	$Call

MONITORS

15"

14" (1024x768) .39mm Interlaced	$208
14" (1024x768) .28mm Interlaced	$248
14" (1024x768) .28mm Non-Interlaced	$273
14" Acer (1024x768) .28mm Non-Interlaced (34T)	$320
14" ViewSonic 6E (1024x768) .28mm NI (60Hz)	$320
14" Sampo KDM-1466 (1024x768) .28 NI (70Hz)	$385
14" Club AT (1024x768) .28mm Interlaced	$320
14" Club AT (1024x768) .28mm Non-Interlaced	$370
15" SAMPO KDM-1566 (1280x1024) .28mm NI	$485
15" ViewSonic 6FS	$538
15" NEC 3FGX (1024x768) .28mm (60Hz)	$638
15" NEC 4FG (1024x768) .28mm (70Hz)	$748
17" Sampo KDM-1766 (1280x1024) .31 NI	$785
17" Nanao F550I Flatscreen (1280x1024) .28 NI	$Call
17" ViewSonic 7 (1280x1024) .28mm NI	$962
20"	$Call

SVGA CARD

MGP Card	$15
SVGA Card w/ 512Kb or 1Mb	$36 / $56
GTK TsengLab ET-4000 True Color w/ 1Mb	$85
GTK Windows Accelerator True Color w/ 1Mb	$75
S3 Windows Accelerator Turbo w/ 1Mb (V-RAM)	$115
Pixel Windows Accelerator w/ 1Mb & IDE w/ IO	$98
Pixel FX Hi-Color Turbo w/ 1Mb (TsengLab ET4000)	$98
Diamond Stealth Vram Hi-Color w/ 1Mb (ISA)	$195
Diamond Stealth 24 w/ 1Mb (Vesa Local Bus)	$157
Orchid Pro II/s Hi-Color w/ 1Mb	$112
Orchid Fahrenheit 1280 Plus Hi-Color w/ 1Mb	$Special
Orchid Fahrenheit 1280 Hi-Color w/ 1Mb (VLB)	$165
ATI Graphic Ultra Pro w/ 2Mb (Vesa Local Bus)	$388

KEYBOARDS

Keyboard 101 Enhanced	$20
Keyboard 101 Keytronic	$36
Keyboard 101 Enhanced Click (NMB)	$45
Keyboard Focus 9000 CLick w/ Calculator	$65
Keyboard Northgate Ultra	$95
Keyboard Drawer (under table)	$18
Keyboard Drawer w/ Power Center	$45

MODEMS

Modem 2400 or Modem 2400 & Fax 9600	$38 / $55
Modem 14,400 & Fax 14,400 (Internal)	$185
Modem 14.400 & Fax 14,400 (external)	$225

CASES

Mini Desktop Case + Power Supply 200W	$55
Mini Tower Case + Power Supply 200W	$55
Medium Tower Case + Power Supply 230W	$85
Full Size Tower Case + Power Supply 250W	$98
Black Tower	$Call

MICE

Real Microsoft Mouse Serial

$45⁰⁰

Microsoft Mouse Conpatible (3-Buttons)	$9.95
Logitech First Mouse	$29.95
Logictech Mouse Man Serial	$39.95
Real Microsoft Bus Mouse	$79.95

SPECIAL

ORCHID

Orchid Fahrenheit 1280 Hi-Color w/ 1Mb

$145⁰⁰

Orchid Fahrenheit 1280 + 14" Club AT 1024x768 .28	$415
Orchid Fahrenheit 1280 + 14" Club AT 1024x768 .28 NI	$468
Orchid Fahrenheit 1280 + 14" SAMPO Alpha KDM-1466	$488
Orchid Fahrenheit 1280 + 15" SAMPO Alpha KDM-1566	$598

SoundBlaster

$88⁰⁰

SOUND BLASTER

Sound Blaster Pro Basic	$148
Sound Blaster Pro	$178.95
Sound Blaster 16-Bit	$248.95
Creative Lab Multi Media Upgrade Kit	$505

CD ROM Drives & Software

Mitsumi CD-ROM w/ Controller (350ms)	$225
PanaSonic CD-ROM w/ Controller (350ms)	$265
NEC CDR-84 SCSI internal (280ms)	$555
Toshiba SM-3401B SCSI 256K Cache (200ms)	$478
CD ROM Titles SoftWare	$25% off for everything

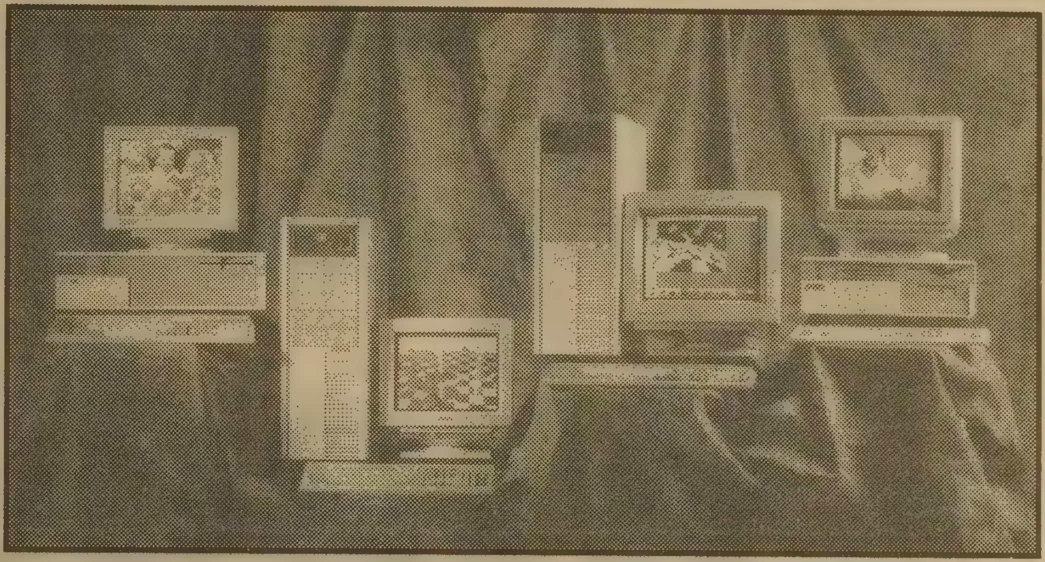
TAPE BACK-UP

Colorado 120Mb Tape Back-up	$158
Colorado 250Mb Tape Back-up	$213

ACCESSORIES

Cpu cooling kit w/ heatsink & fan	$17.95
MS-DOS 5.0 or Windows 3.1 (OEM)	$35
ULSI Math Coprocessor 387-40MHz	$85
SuperMath 387sx25MHz	$35
Mouse Pad	$1.95
Panasonic 1123 Printer	$198
Citizen GSX230	$238
Color Option Kit	$48
Printer Stand	$2.95
Power Center (Surge Protector)	$19.95

We Will Beat Any Advertised Price



486 VESA Local Bus

- ★ MotherBoard w/ **Intel CPU**
- ★ 128K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ **Windows Accelerator True Color 1Mb Vesa LB**
- ★ **14" Super VGA Color Monitor (1024x768)**
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **FREE Real Microsoft Mouse Serial**

486DX2-66	**$1558**
486DX-50	**$1458**
486DX2-50	**$1428**
486DX-33	**$1308**

486 ISA System

- ★ MottherBoard w/ **Intel CPU**
- ★ 64K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ Super VGA Card w/ **512Kb (16-bit)**
- ★ **14" Super VGA Color Monitor (1024x768)**
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **Free Real Microsoft Mouse Serial**

486DX2-66	**$1458**
486DX-50	**$1358**
486DX2-50	**$1318**
486DX-33	**$1208**

486DLC & 386 ISA System

- ★ MotherBoard w/ CPU
- ★ 64K Cache
- ★ **4Mb Ram** installed expandable to 32Mb
- ★ IDE Controller 2HD & 2FD w/ 2s, 1p, 1g Port
- ★ Floppy Drive **1.2Mb & 1.44Mb**
- ★ **Hard Disk 130Mb** IDE 15ms (Maxtor 7120A)
- ★ Super VGA Card w/ **512Kb (16-bit)**
- ★ **14" Super VGA Color Monitor (1024x768)**
- ★ 101 Keys Enhanced Keyboard
- ★ Mini Tower Case w/ 200 Watts Power Supply
- ★ **Free Real Microsoft Mouse Serial**

486DLC-40	**$1188**
486DLC-33	**$1098**
486SX-25	**$1098**
486DX-40	**$948**

One Year Warranty Parts & Labor On Systems

- ☐ ***Customize Configuration Available***
- ☐ ***Financing Available***
- ☐ ***24 Hours Turn-Around Time On Service***
- ☐ ***All Systems Are Burned-In and Tested for 72 Hours***

Office Hours: Mon - Fri : 9:30 am - 7:00 pm · Sat.: 10:00 am - 6:00 pm

Call Pixel USA BBS, 929-6981, 8N1, 4 lines, FREE access.

SAVE 3%
ON CASH PURCHASE

1937 Tully Road • San Jose, CA 95122

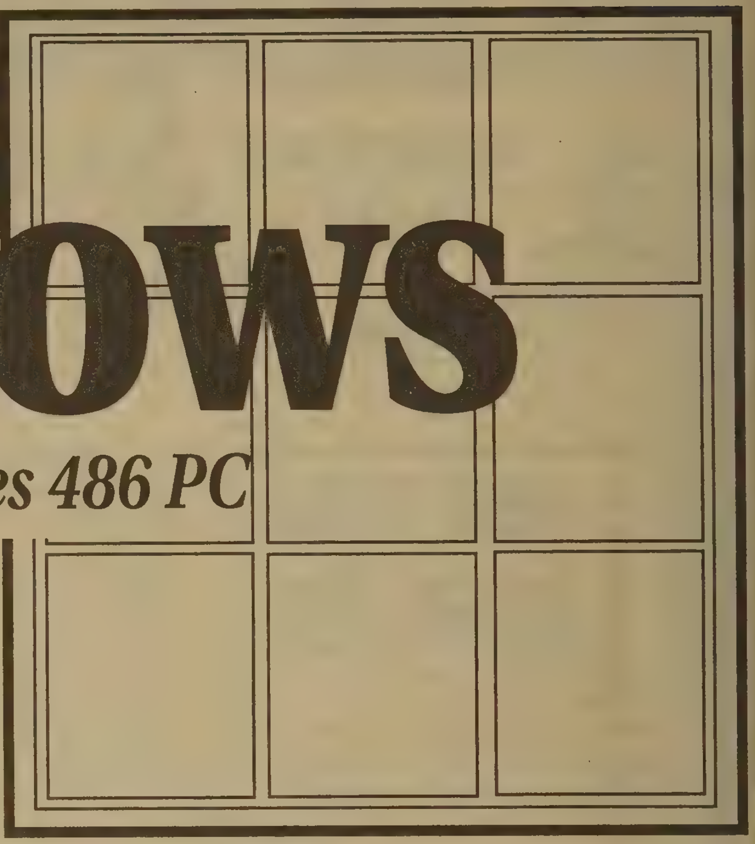
VISA **(408) 929-7218** MasterCard

Fax: (408) 929-7244

PIXEL U.S.A.

Amiga Does Windows

Golden Gate Card Emulates 486 PC



BY DOUGLAS J. NAKAKIHARA

RESOURCES:

Golden Gate 486SLC, $1099
Floppy disk controller
Monitor Master
Vortex
3835 Richmond Ave.,
Ste. 138
Staten Island, NY
10312
(718)967-1509
fax (718)948-0893

PC compatibility is an important issue even among MS-DOS machines; however, it is a significantly more difficult issue for the Amiga, which doesn't use the MS-DOS operating system. Although the Amiga can read and write PC-formatted disks, the available software-based PC emulators are not up to the task of running resource-hungry applications like Microsoft Windows.

Fortunately, the Amiga was specifically designed to have hardware-based PC emulation added on. The Amiga 3000, for example, has four internal slots, two of which can be used for PC/AT cards. However, you can't just plug a PC card into your Amiga and use it. One of the slots must be occupied by a PC-emulator card—Commodore refers to these as "bridgecards." (There are certain exceptions, like PC time-based corrector cards, which only use the Amiga bus for electrical power.)

Vortex's Golden Gate 486SLC (GG) is the first commercially distributed PC emulator built around a 486 processor, specifically the Cyrix 486SLC microprocessor at a speedy 25MHz. Though no "Intel Inside" sticker appears anywhere, the 486SLC is compatible with the Intel 486SX instruction set. The only thing missing from the 486SLC is the math coprocessor, but this can be added with a separate chip.

The GG is a Zorro II board designed to operate in any Amiga 2000/3000/4000 series computer. The thick manual that comes with the board gives good installation instructions and even provides pictures of the board being installed in an Amiga 2000 and 3000. The manual is written in German, English, and French. All three versions are included in the single manual. (The manual shows its German origins, and the English instructions sometimes require a little interpretation.)

RANDOM ACCESS MEMORY

The standard GG model ships with 2MB of RAM using two one-meg SIMMs. Since the board can only hold four SIMM modules, you cannot reach the maximum 16MB. Therefore, you should opt for the version that ships with two four-meg SIMMs, which will allow you to max out the board at 16MB.

Besides adding RAM directly to the emulator board, you have the option of using part of your Amiga RAM as PC RAM. This may give you a performance hit, however, since Amiga RAM is generally slower than the GG's RAM. Conversely, you can also allocate up to 4MB of the GG's RAM to the Amiga side. This is a hardware setting and cannot be changed on-the-fly. This is a great feature since Amiga RAM is generally more expensive than its PC counterpart.

DISK STORAGE

As far as storage peripherals go, the standard GG comes with an IDE hard disk interface, which allows you to hook an IDE hard disk directly to the board. You will also have access to any Amiga hard or floppy disk drive from the PC side. You can either allocate an entire hard disk partition for GG's use, or you can emulate a partition using a file. Both are just as easy to set up; however, the file method will be much slower. Normal Amiga floppies can be used as 720K PC drives. If you are lucky enough to have high-density Amiga drives, these can read and write 1.44MB PC disks.

The optional floppy disk controller gives you the ability to hook up two standard PC floppy disk drives directly to the GG board. These can range from an ancient 5.25" 360K drive all the way up to a 2.88MB 3.5" floppy drive. Vortex even provides a special utility for formatting the 2.88MB disks, if you are using an MS-DOS that predates v5.0.

1.44MB disk access is virtually a necessity nowadays, and this can present a problem for A3000 owners. Since the A3000 has a special floppy faceplate, there is no way to mount a PC floppy internally. Furthermore, though an external floppy drive port is mounted on the back of the GG, these drives are not common, and they're very expensive.

I was able to come up with a temporary solution, however. Using my XT as a huge power supply, I simply connected the GG's floppy cable to the 1.44MB floppy mounted in my XT. Based on the success of this solution, I assume you could mount a 3.5" PC floppy drive in an external hard disk case with power supply, and connect it to the GG, either using the floppy cable or via the GG's external floppy port (you'd probably have to build your own cable though). Fortunately, once the software is loaded, a 1.44MB disk is not a requirement. Most software is available in the 720K format anyway.

The GG board also ships with what's called Server software. Basi-

Continued on page 212

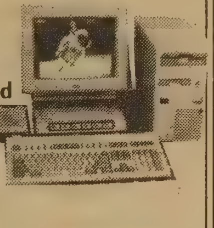
Copyright © 1993 by Douglas J. Nakakihara. All rights reserved.

"WE'VE GOT THE BEST BOXES IN TOWN"

Plus RT COMPUTERS Offers FREE LIFETIME PHONE SUPPORT!

"RT WORK HORSE"

386 DX40 MHz 64K Cache



- 4 MB RAM 70ns
- Mini Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 130 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- Serial Mouse
- MS DOS 5.0
- MS Windows 3.1

Other options or substitutions available

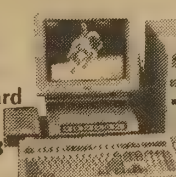
$1125

$45 MONTH

$45/MONTH

"RT WORKHOUSE PLUS"

486SX-25 64K Cache



- 4 MB RAM 70ns
- Mini Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 130 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- 3 Button Mouse
- MS DOS 5.0
- MS Windows 3.1

intel inside

Other options or substitutions available

$1235

$48 MONTH

$48/MONTH

Easily Upgradable To 486DX!

"RT PREMIER"

486DX 33 MHz 64K Cache

- 4 MB RAM 70ns
- Mid Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 130 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- 14" Super VGA Monitor .28dp
- Trident Super VGA Driver 1MB
- 101 Keyboard
- 3 Button Mouse
- MS DOS 5.0
- MS Windows 3.1

intel inside

Other options or substitutions available

$1399

$55 MONTH

$55/MONTH

"RT POWER TOWER"

486DX 50 MHz 256K Cache

- 4 MB RAM 70ns
- 1.2 MB (5.25") Floppy Drive
- 200 MB IDE Hard Disk
- 14" Super VGA Monitor .28dp (Non-Interlaced)
- Orchid Pro Designer Is Driver w/1 MB RAM
- 3 Button Mouse
- MS DOS 5.0
- MS Windows 3.1
- Full Tower w/250 Watts
- 1.44 MB (3.5") Floppy Drive
- 2H/2F/2S/1P/1G Controller Card
- 101 Keyboard

intel inside

Other options or substitutions available

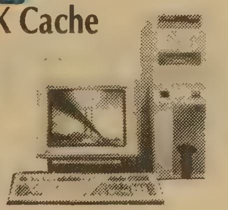
$1839

$73 MONTH

$73/MONTH

"RT POWER TOWER II"

486DX 50 MHz EISA 256K Cache



- 8 MB RAM 60ns
- Full Tower w/250 Watts
- 540 MB 32bit SCSI Hard Drive
- 1 MB Cache 32Bit SCSI CONTROLLER
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 2S/1P/1G Ports
- 15" NON-INT. SVGA Monitor
- Orchid Pro2s 1 MB SVGA Driver
- 101 Keyboard
- 3 Button Mouse
- MS DOS 5.0
- MS Windows 3.1

intel inside

$3299

$140/MONTH

Other options or substitutions available

$140 MONTH

"WE BELIEVE EVERY CUSTOMER SHOULD LEAVE OUR OFFICE TOTALLY SATISFIED. THAT'S WHAT WE STRIVE FOR"

RAY TETREAULT
OWNER-RT COMPUTERS

"RT LOCAL BUS"

486DX 33 MHz or 486DX2 66 MHz VESA LOCAL BUS 256K Cache

- 8 MB RAM 70ns
- Mid Tower w/230 Watts
- 1.2 MB (5.25") Floppy Drive
- 1.44 MB (3.5") Floppy Drive
- 130 MB IDE Hard Disk
- 2H/2F/2S/1P/1G Controller Card
- LOCAL BUS IDE Controller
- 14" Super VGA Monitor .28dp (Non-Interlaced)
- Genoa VESA Local Bus Driver
- 101 Keyboard
- 3 Button Mouse
- MS DOS 5.0
- MS Windows 3.1

intel inside

Other options or substitutions available

33 MHz	66 MHz
$1725	**$1999**
$69/MONTH	$79/MONTH

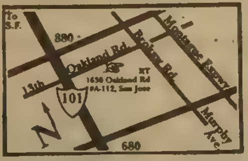
$69/79 MONTH

NETWORK SOLUTIONS FOR SMALL BUSINESSES!

Let RT COMPUTERS Help Find The Right Solution To Your Networking Needs. We Offer The LANtastic Networking System, PC Magazine's Product Of The Year, A LOW COST NETWORK SOLUTION FOR 2-200 USERS! Let RT COMPUTERS Design Your Network And Take The Mystery, Pain And High Cost Out Of The Process!

CALL FOR MORE INFORMATION & FREE CONSULTATION!

PRICES REFLECT CASH DISCOUNTS



FINANCING AVAILABLE

1630 OAKLAND RD.
SUITE #A-112
SAN JOSE, CA 95131
MON-FRI 9-6, SAT 10-4
FAX: (408) 437-1156
408 437-3063

R·T COMPUTERS

FULL SERVICE DEALER

PRICES SUBJECT TO CHANGE W/O NOTICE NOT RESPONSIBLE FOR TYPOGRAPHIC ERRORS

5 Year in-store Labor warranty! 1 Year warranty on parts!

486DX-50EISA
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80486DX-50MHz CPU chip, ***AMI*** BIOS
☐ 256K fast SRAM Cache on board (20NS)
☐ 4MB RAM (60NS), Maximum 128MB
☐ One 32bit local bus, Three 32bit EISA, Four ISA slot
☐ 275 Watt power supply with two cooling fan
☐ Full tower case with 7 drives bay
☐ *Teac* One 5 1/4" 1.2MB floppy drive
☐ *Teac* One 3 1/2" 1.44MB floppy drive
☐ Two serial, One parallel & Game port
☐ *Focus* 2001 enhanced 101 -key keyboard
☐ MicroSoft DOS 5.0 & Windows 3.1, Hi-res mouse
☐ Landmark 167.26MHz (V2.0)
☐ Power meter 22.399 mips (V1.5)
☐ Norton SI 77.7 (4.01)

SVGA & 130MB	*$1799*
SVGA & 245MB	*$1939*
SVGA & 340MB	*$2149*

486DX/2-66
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80486DX/2-66MHz CPU, w/128K Cache
☐ 4MB RAM, ***AMI*** BIOS
☐ IDE Controller and Hard Drive
☐ Super VGA card with 1024K
☐ 14" Super VGA monitor 0.28
☐ *Teac* 1.2MB or 1.44MB floppy drive
☐ Two serial, one parallel, game port
☐ *Focus* 2001enhaced keyboard
☐ MS DOS 5.0 w/ Menu
☐ *5 Year labor, One year parts warranty*

SVGA & 130MB	*$1549*
SVGA & 245MB	*$1669*
SVGA & 340MB	*$1889*

486DX-50 VESA
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80486DX-50MHz CPU, w/128K Cache
☐ 4MB RAM, ***AMI*** BIOS, VESA
☐ Two VESA slot, Four ISA AT slots
☐ IDE Controller and Hard Drive
☐ Super VGA card with 1024K
☐ 14" Super VGA monitor 0.28
☐ *Teac* 1.2MB or 1.44MB floppy drive
☐ Two serial, one parallel, game port
☐ *Focus* 2001enhaced keyboard
☐ MS DOS 5.0 w/ Menu
☐ *5 Year labor, One year parts warranty*

SVGA & 130MB	*$1479*
SVGA & 245MB	*$1599*
SVGA & 340MB	*$1819*

Serving You Since 1985 !

486DX-50
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80486DX-33MHz CPU, w/128K Cache
☐ 1MB RAM, ***AMI*** BIOS
☐ IDE Controller and Hard Drive
☐ Super VGA Card with 1024K RAM
☐ 14" Super VGA monitor 0.28
☐ *Teac* 1.2MB or 1.44MB floppy drive
☐ Two serial, one parallel, game port
☐ *Focus* 2001enhaced keyboard
☐ MS DOS 5.0 w/ Menu
☐ *5 Year labor, One year parts warranty*

SVGA & 80MB	*$1289*
SVGA & 130MB	*$1339*
SVGA & 245MB	*$1459*

New 3486DX-33
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80386DX-33MHz CPU, w/128K Cache
3486 Mother board Upgradable from 386DX to **486DX** by changing CPU chip
☐ 1MB RAM, ***AMI*** BIOS
☐ IDE Controller and *Maxtor* Hard Drive
☐ 14" Super VGA monitor 0.28 (1024x768)
☐ *Teac* 1.2MB or 1.44MB floppy drive
☐ Two serial, one parallel, game port
☐ *Focus* 2001enhaced keyboard
☐ MS DOS 5.0 w/ Menu
☐ *5 Year labor, One year parts warranty*

SVGA & 80MB	*$ 919*
SVGA & 130MB	*$ 959*
SVGA & 210MB	*$1059*

386SX-25
Complete System

With Hard Disk Drive
& Super VGA Monitor

☐ *Intel* 80386SX-25MHz CPU
☐ 1MB RAM, ***AMI*** BIOS
☐ IDE Controller and Hard Drive
☐ Super VGA Card with 1024K RAM
☐ 14" Super VGA monitor 0.28
☐ *Teac* 1.2MB or 1.44MB floppy drive
☐ Two serial, one parallel, game port
☐ *Focus* 2001enhaced keyboard
☐ MS DOS 5.0 w/ Menu
☐ *5 Year labor, One year parts warranty*

SVGA & 80MB	*$ 829*
SVGA & 130MB	*$ 879*
SVGA & 210MB	*$ 949*

Mercury Computer Corporation

1601 Telegraph Avenue, Oakland, Ca 94612 Phone:(510)763-7631 Fax:(510)763-0814

Life-time Technical support! 30-day refund policy!

VIDEO CARD

Orchid		
Fahrenheit	Local Bus, VESA1MB Hi-Color 1280x1024,	$ 175
Fahrenheit	Hi-color , 1MB 1024x768	139
GENOA	SVGA local bus VESA, 1024 x 768, 1MB	169
Tseng Lab ET4000LV	Local bus, VESA, 1MB	149
Diamond		
Stealth 24VLB	1MB RAM, 1280x1024 , Local Bus	209
SpeedStar 24X	1MB , 1024x768, Non-interlaced	189
ATI	Ultra graphics w/1MB w/Mouse	289
Trident	SuperVGA 1024x768 1MB RAM	59

MONITORS

ViewSonic			
V6	14"	1024x768 .28 Non-interlaced SVGA	349
V7	17"	1280x1024 Non-interlaced	999
V8	20"	1280x1024 .31	1699
MAG INNOVISION			
MV1448	14"	1024x768, .28, Non-interlaced	459
MX14H	14"	1280x1024, .28, Non-Interlaced	559
MX15F	15"	1280x1024, .28, Non-Interlaced, Flat ...	699
MX17F	17"	1280x1024, .28, Non-Interlaced, Flat ...	1399
NEC			
3FGX/ 4FG/ 5FG			649/749/1399
6FG	21"	1280x1024 .28mm 135MHz bandwidth	2999
Sony			
1304S	14"	1024x768 .25 Non-interlaced Low radiation	559
1604S	17"	1024x768 .25 30-57 KHz scan frequency	999
PACKARD BELL 8528 SVGA	14"	1024x768 .28	279
Eye-Q	14"	1024x768, .28 Interlaced	249

DRIVES

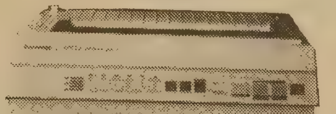
Brand	model	capacity	speed	warranty	price
	IDE Hard disk drive				
Conner	CP3000	42 MB	28 ms	1 year	149
Conner	CP30084	80 MB	19 ms	1 year	209
Conner	CP30104	120 MB	19 ms	1 year	239
Conner	CP3204	212 MB	19 ms	1 year	349
Conner	CP3544	540 MB	13 ms	1 year	899
Maxtor	7080	80 MB	19ms	1 year	209
Maxtor	7120A	125 MB	15 ms	1 year	239
Maxtor	7213A	213 MB	15 ms	1 year	349
Maxtor	LXT-340A	340 MB	15 ms	1 year	649
Maxtor	7245A	245 MB	15ms	1 year	355
Fujitsu	M2623T	420 MB	12 ms	5 year	899
Fujitsu	M2624T	520 MB	12 ms	5 year	949
	SCSI hard drive				
Maxtor	LXT-213SY	213 MB	14.5 ms	1 year	379
Maxtor	LXT-7080SR	80 MB	17 ms	1 year	239
Maxtor	LXT-340SYS	360 MB	15 ms	1 year	649
Maxtor	XT-8760S	650 MB	14 ms	1 year	1099
Maxtor	PO-12S	1.2 GB	13 ms	1 year	1399
Fujitsu	M2623S	425 MB	12 ms	5 year	Call
Fujitsu	M2263SA	687 MB	12 ms	5 year	1169
Fujitsu	1.2GB	1.2GB	14 ms	5 year	1699

Controller (IDE & SCSI)

ADAPTEC	1542BK SCSI hard/floppy controller	249
UltraStor	15C IDE 0k(8MB Max.)	189
UltraStor	24F SCSI (EISA) 64k buffer, fast SCSI-2 33MB/sec	399
UltraStor	14F SCSI (AT), 64K buffer, Fast SCSI-2 10MB/sec	229
Future Domain	TMC-1680 SCSI-2 (AT), drive 4 floppy	169
DTC	2290 IDE (EISA), drive 3 floppy, 7.1MB/sec	149
DTC	3290 SCSI (EISA), 33MB/sec	459

PRINTERS

Panasonic				
KX-P1123	24 pin	214 cps	80 col	199
KX-P1124i	24 pin	240 cps	80 col	289
KX-P2123	24 pin	240 cps	80 col quiet	239
KX-P2124	24 pin	320cps	80 col quiet	349
KX-P2180	9 pin	192 cps	80 col quiet	159
KX-P1624	24 pin	240cps	132 col	349
KX-P2624	24 pin	300 cps	136col	379
KX-P4410	Laser	5 ppm	512K	629
KX-P4430	Laser	5 ppm	1MB PCL Scalable...	949
KX-P4455	Laser PS	11 ppm	2 MB 39 ps fonts ...	1695
Hewlett Packard				
DeskJet	500 / 550C			399/719
LaserJet	IIP plus / IIIP			789/999
LaserJet	4 / IIID W/ TONER			1449/2295
LaserJet	IIISi			3495



EPSON				
LQ-570	24 pin	315 cps	80col	269
LQ-870	24 pin	330 cps	136 co	459
LQ-1070	24 pin	315 cps	136col	389
Action	24 pin	200 cps	80col	209
LQ-2550	24 pin	400 cps	136col	899
FX-850	9 pin	264 cps	80col	309
FX-1050	9 pin	264 cps	132col	419
EPL-7000	Laser	6 PPM	512k	819
EPL-7500	Laser PS	6 PPM	2MB	1979
EPL-8000	Laser	10PPM	13 Scalable fonts	1349

New TOSHIBA *Satellite*

T1800 Notebook

- 80386SX 20MHz
  2MB RAM
  60MB Hard drive

$1329

☐ T-1850	4MB RAM, 80MB HD	*$1,699*
☐ T-1850C	Color 4MB RAM, 80MB HD	*$2,349*
☐ T-1850C	Color 4MB RAM, 120MB HD	*$2,639*
☐ T-2200SX	2MB RAM, 80MB HD	*$1,889*
☐ T-3300SL	4MB RAM, 120MB HD	*$2,149*
☐ T-4400SX	486SX/25, Gas Plasma	*$2,399*

brother We're at your side

Save40% *Only*

$1199

HL-10V Laser Printer

More Speed
More Features
Less Money

brother HL-10V

Lower paper tray $289

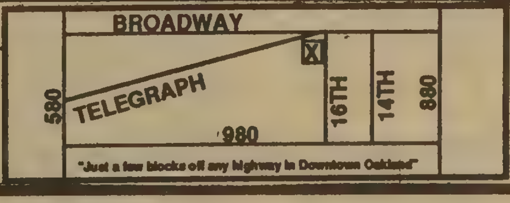
Memory board w/1mb $149

	Brother	HP LaserJet III
Page Per minute	10	8
Scalable fonts	12	8
Bitmapped fonts	24	14
Universal Tray	Yes	No
Gray Scales	64	8
Auto-Interface	Standard	No
Aotu-Emulation	Standard	No

5 Year in-store Labor warranty! 1 Year warranty on parts! 48 Hour repair turn-around!
Life-time Technical support! 30-day refund policy! Corporate & Gov't POs welcome!

Store Hours:
M-F: 9AM to 6PM
Sat.:10AM to 2PM

MasterCard VISA



"Just a few blocks off any highway in Downtown Oakland"

Sales Hotline: 510-763-7631

Report From Macworld Expo

Sex, Disks, And Rock 'N' Roll

BY DAVID MORGENSTERN

BMUG

Is there anything better than a Macworld Expo? Excluding the obvious things, of course—wine, women, song, and BMUG meetings. I'm energized by the crowds, the ozone tang of overheating transformers, the tired feet, and the neat new toys.

I'm a total sucker for the crazy wares sold on the sidewalk outside the show. This year I picked up a couple of battery-powered bloody crawling cut-off rubber hands. They're a double bargain—they make excellent visual aids for Repetitive Stress discussions, and perfectly demonstrate the finger action required for the G Major scale.

I gave one to my wife for our wedding anniversary. Who says I'm not a romantic?

ADD WATER AND MIX

It was really raining during the San Francisco Expo. Pouring buckets. The long drought had made us forget the silly timing of the Macworld shows. The middle of the cold soaking winter for San Francisco, and the hot humid summer for the Boston show.

The diverse capabilities and price points of Macintosh models have brought an equally complex mix of users. The changing face of the Macintosh community was evident in the crowds at the Expo. A few years ago, when Apple spent all its effort pushing the Macintosh as a business machine, everyone in and out of the booths was dressed in three-piece suits. There are a few oddballs at the computer music and graphic arts booths, but the watchwords were productivity, spreadsheets, and databases. The BMUG booth's tie-dye and our graffiti-inspired decor have always been show stoppers.

This year there were old and young people wearing T-shirts. There were brand new owners of entry-level machines, with their chins dragging on the floor gawking at all the goodies displayed. And of course there were plenty of "real" business people.

Steve Costa observed, "The common phrase at the show was one that we heard just after System 7 came out. 'It will be out two weeks from now, or real soon now.' I must have heard the two-week phrase at least thirty-five times."

All the working Newton prototypes in existence went to the Las Vegas Consumer Electronics Show, and Expo attendees had to be satisfied with a pantomime model Newton. I was underwhelmed by the Etch-A-Sketch display, shown under a sealed plastic case. I want a real palmtop!

There was circumstantial evidence of the PowerPC, Apple's new RISC-based computer. Apple's Developer University was taking orders for a new CD-ROM-based course titled "A Programmer's Introduction to RISC and PowerPC". I talked with a poor engineer who had to leave the BMUG party early, because of the PowerPC. It seemed that Apple had a PowerPC developmental machine in a hotel suite, allowing hardware and software companies a moment to compatibility test their current products on it. We haven't heard any results from these late-night assignations.

This year's addition to the BMUG booth was a giant tie-dyed balloon floating above the floor, but the best booth award must go to Pinnacle Micro. They transported us to the lobby of a posh Hawaiian hotel, with a huge indoor waterfall. I was a little nervous at all the water around the electrical equipment, but no one was taking a bath, so it was safe.

The BMUG party was a smash hit, with Middle Eastern food. It was held in the Bridge nightclub, near the Moscone Center. Alisa Schulman, BMUG's office manager, was the disc jockey for the dance floor in the club. Unfortunately, few BMUGers are known for their dancing skills.

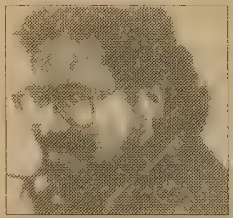
THE INVASION OF THE BAUDY SNATCHERS

QuickTime infiltrated itself into every corner of the floor. If a product didn't actually use QuickTime technology, some poor programmer was stuck in a hotel suite working on a hack to provide it. Entire movies were available in QuickTime format, from Betty Boop cartoon classics from the 1930s, to the Beatles' *Hard Day's Night.* The biggest crowds and sales went for the many pornographic uses of the technology.

The sex software developers are trying hard to be creative—an incredibly demanding task. A couple of guys from ICFX Inc., a Bay Area multimedia company, were passing out promotional cards for Penthouse Interactive, a soon-to-be-released CD-ROM. The user is the photographer in a photo session with a model. As the QuickTime movie of the model displaying herself runs, the photographer snaps the shutter of a virtual camera. The results of the photo shoot are laid out in an editorial meeting in another part of the program. I asked if the virtual camera would teach the user about photography, by processing the selected frame depending on the f-stop and shutter speed. Add educational value to a pinup product? Are you nuts?

> *Be on the lookout for a file named CPro 1.41.sea, which pretends to be the self-extracting archive update to the Compactor Pro compression/ archival program. It is really a Trojan Horse.*

Digital Dancing: The Erotic Challenge is a multimedia striptease game where the name is better than the virtual reality. The user



Copyright © 1993 by David Morgenstern. All rights reserved.

Network Products for Less!

Lan Cards

Coax Ethernet

3COM 3C503-16 ETHERLINK II 16-bit	199
3COM 3C503-16 ETHERLINK II 5 Pack	738
3COM 3C523B ETHERLINK/MC	290
3COM 3C523B ETHERLINK/MC 5 Pack	1,278
3COM 3C507 16-BIT ETHERLINK	304
3COM 3C507 5 Pack, (1 Doc/Drivers)	1,347
3COM 3C509 ETHERLINK III 16-bit	145
3COM 3C509 ETHERLINK III 5-Pack	650
INTEL ETHEREXPRESS 16	135
INTEL ETHEREXPRESS 16 MCA	176
INTEL ETHEREXPRESS 16 5 Pack (1 Doc/Drivers)	600
INTEL ETHEREXPRESS 16 20 Pack (1 Doc/Drivers)	2,007
NOVELL/EAGLE NE2000 16-Bit	139
NOVELL/EAGLE NE2/2C 16-bit Micro Channel	253
SMC ETHERCARD ELITE 16 Coax	144
SMC ETHERCARD ELITE 16 Coax 6 Pack	788
SMC ETHERCARD ELITE/A FOR PS/2	221
3COM 3C579 ETHERLINK III 32-bit Coax	**299**
3COM 3C579 ETHERLINK III 32-bit Coax 5-pk	**1,150**
ACCTON 32-Bit EISA Coax/10BaseT Combo	450
INTEL ETHEREXPRESS 32-Bit EISA	465
NOVELL/EAGLE NE3200 32-Bit EISA	711
NOVELL/EAGLE NE2/32C 32-Bit MC	543

10 Base-T Twisted Pair Ethernet

HTI 10 Base-T transceiver (AUI to RJ45)	89
3COM 3C503-16TP ETHERLINK II 16 16-bit	209
3COM 3C503-16TP ETHERLINK II 16 5PK	825
3COM 3C507 ETHERLINK 16-bit TP	340
3COM 3C507 ETHERLINK 16-bit TP 5PK	1,394
3COM 3C509-TP ETHERLINK III 16-bit	145
3COM 3C509-TP ETHERLINK III 16-bit 5-pack	650
3COM 3C523B 10 Base-T MC	337
3COM 3C523B 10 Base-T MC 5 Pack	1,517
INTEL ETHEREXPRESS 16 TP	145
INTEL ETHEREXPRESS 16 TP MCA	186
INTEL ETHEREXPRESS 16 TP 5 Pack	600
SMC ETHERCARD ELITE 16T 10 Base-T	144
SMC ETHERCARD ELITE 16T 10 Base-T 6 Pack	799
SMC ETHERCARD ELITE 16 COMBO	177
SMC ETHERCARD ELITE 16 COMBO 6 Pack	984
INTEL FlashC 16-Bit (New Product)	**175**
INTEL FlashC 5-Pack	**836**
3COM 3C579 ETHERLINK III EISA 10BaseT	**299**
3COM 3C579 ETHERLINK III EISA 10BT 5-pk	**1,150**

External/Pocket Adapters

HTI Ext. Ethernet Adapter w/ Parallel Port	199
HTI Ext. 10 Base-T Adapter w/ Parallel Port	199
XIRCOM Pocket Ethernet Adapter BNC	345
Pocket Ethernet Adapter 10BaseT	378
External Ethernet Adapter	413
Credit Card Ethernet Adapter (PCMCIA)	300

10 Base-T Concentrators

ASANTE 8-Port Concentrator	299
ASANTE 1012 12-Port Smart Hub	820
ASANTE 1701 Smart Hub 12-port w/SMNP module	966
EAGLE 4-port Hublet Mini-Repeater	228
HTI 16-port 10 Base-T Concentrator	599
EXOS/MICRODYNE 16 port 10 Base-T Concentrator	621
INTEL Int. EtherExpress TPE Hub/ISA (12 ports)	565
INTEL Int. EtherExpress TPE Hub/EISA (12 ports)	641
INTEL Hub Expansion Board (12 add'l ports)	490
INTEL Harmonica for EtherExpress TPE Hub	65

Manageable Concentrators

3COM Linkbuilder FMS TP Hub	779
3COM FMS Isoview Software	249
3COM FMS Management Software	640
NETWORTH 6-Slot Chassis	802
Host 10BaseT Module	1,234
Smart 10 BaseT Module	1,791
EtherManager Software	1,234

Repeaters

ACCTON EtherRepeater 2 AUI/2 BNC	685
IMC LANextender BNC/BNC-limited to 1 per lan	325
IMC Dual Port Ethernet Repeater BNC/BNC	492
IMC Quad Port Repeater	600

Etherlink III EISA Card

3Com's new 32-bit EISA adapter features :

- Parallel Tasking, High Performance
- Software Configurable
- Lifetime Warranty
- Workstation & Server Drivers Included
- Lowest cost EISA lan card on the market

3C579 Single Coax or 10BaseT	$299
3C579 5-pack Coax or 10BaseT	$1,150

3COM Etherlink III 16-bit Lan Adapters*

3C509 Single Coax or 10 BaseT	$145
3C509 5-pack Coax or 10BaseT	$650

INTEL'S NEWEST LAN CARD

EtherExpress FlashC 16-bit Combo	$175
EtherExpress FlashC 5-Pack	$836

- Flash memory ensures future compatibility
- Configures automatically w/o diskette
- Combo adapter includes thin coax, thick coax and 10BaseT connections
- Easiest installation

Intel's 32-Bit Server Adapter *

Intel EtherExpress 32-Bit Coax	$465

* Received PC Magazine's Editor's Choice Award (February 9, 1993)

Network Printing

CASTELLE JETPRESS BNC/10 Base-T	436
FRESH TECH Printer Assist (Software)	175
INTEL NETPORT II for Ethernet	529
INTEL NETPORT II for 10 Base-T	529
INTEL NETPORT II for Token Ring	760
XIRCOM PRINT SERVER (New Product)	415

Uninterruptible Power Supplies

APC250 (200watt UPS for workstations)	140
APC POWERCHUTE PLUS for Novell (VAP/NLM)	99
APC SMART-UPS 400	323
APC SMART-UPS 600	411
APC SMART-UPS 900	650
APC SMART-UPS 1250	844
APC SMART-UPS 2000	1,294

Network Fax

CHEYENNE FaxServe VAP/NLM	679
OPTUS FACSys NetWare Fax Server Software	651
INTEL Satisfaxtion Modem 200	330
INTEL Net Satisfaxtion Software	1,040
JETFAX II 9250 w/1 MB	625
JETFAX II 9450 w/ 4 MB	1,016

Tape Backup Solutions

COLORADO QFA-700 W/ CTRL 700 MB	1,100
TJ-10 120MB TRAKKER Parallel Port Tape Drive	395
TJ-20 250MB TRAKKER Parallel Port Tape Drive	479
PT-25 2GB SCSI Tape Drive w/Ctrl	1,110
PT-50 4GB SCSI Tape Drive w/Ctrl	1,725

Server Based Tape Backup

ARCHIVE INT. PYTHON 2GB DAT w/VAP	1,980
ARCHIVE EXT. PYTHON 2GB DAT w/VAP	2,106
ARCHIVE INT. PYTHON 2GB DAT w/NLM	2,051
ARCHIVE EXT. PYTHON 2GB DAT w/NLM	2,177
ARCHIVE INT. PYTHON 4 GB DAT w/NLM	2,849
ARCHIVE EXT. PYTHON 4 GB DAT w/NLM	2,975
EXABYTE INT 2.2 GB 8MM w/NLM	2,744
EXABYTE EXT. 2.2 GB 8MM w/NLM	2,870

MacIntosh Products

ASANTE MC+IIE64 Coax/MAC II	158
ASANTE MC+IIET64 10 BaseT/MAC II	158
ASANTE MC+30iE64 Coax/IIsi & SE/30	158
ASANTE MC+30iET64 10 BaseT/IIsi &SE/30	158
ASANTE EN/SCPB Thick/Thin/10BT for Powerbook	346
ASANTE EN/SC10TPB 10BaseT for Powerbook	283

Cabling Supplies

RG58 & RG62 Rachet BNC Crimper	75
RJ-45 Crimper	75
RG58 Ethernet BNC-Crimp (100 pak)	125
RG62 Arcnet BNC-Crimp (100 pak)	125
RJ45 10 BaseT Connectors (100 pak)	40
AT&T 10Base-T Ethernet Cable (1000' min)	100
BELDEN PVC RG58 or RG62 Cable (1000' min)	175
PLENUM RG58 or RG62 Cable (1000' min)	350

Network Modems

SHIVA NET MODEM/E 9600 BNC	1,502
MICROTEST Ethernet LANModem	1,509
MICROTEST Token Ring LANModem	1,965
U.S. ROBOTICS Modem Sharing Kit V32BIS	635
U.S. ROBOTICS Dual Modem Sharing Kit	1,018

Disk Sub-Systems for NetWare

Micropolis 675 MB w/ SCSI-2 Host Adapter, Drivers, Enclosure. 17 ms	**1,666**
Micropolis 1.0 GB w/SCSI-2 Host Adapter, Drivers, Enclosure 10 ms	**2,364**
Micropolis 1.3 GB w/ SCSI-2 Host Adapter, Drivers, Enclosure. 14 ms w/ 5 year warranty	**2,289**
Micropolis 1.3 GB Mirrored w/ SCSI-2 Host Adapter, Drivers, Enclosure. 14 ms w/ 5 year warranty	**4,302**
Micropolis 1.7GB w/ SCSI-2 Host Adapter, Drivers, Enclosure.14.5 ms w/up to 5 year warranty	**2,905**
Micropolis 1.7GB Mirrored w/SCSI-2 Host Adapter, Drivers, Enclosure.14.5ms w/up to 5 year warranty	**5,526**

E-Mail w/ cc:Mail

cc:MAIL DOS Platform V4.0	205
OS/2 Platform	344
WINDOWS Platform	344
MacIntosh Platform	344
Unix Platform (New Product)	648
10 USERS license	240
25 USERS license	587
100 USERS license	2,287

Novell Software

UnixWare Personal Edition (New Product)	375
LANalyzer for Windows v2.0 (New Version)	1,068
Lan WorkPlace for DOS (Single User)	290
Lan WorkPlace for DOS (10 Users)	1,445
Lan WorkPlace for MacIntosh (Single User)	290
Lan WorkPlace for MacIntosh (10 Users)	1,445
NetWare for Mac (5 Users)	359
NetWare for Mac (20 Users)	649
NetWare Access Server Software	1,662

Network Utilities

CHEYENNE Monitrix Network Mgmt.	595
Utils for NetWare 286/386	262
ARCserve NLM V4.0 (up to 5 users)	273
ARCserve NLM V4.0 (up to 20 users)	810
ARCserve NLM V4.0 (up to 50 users)	1,018
ARCserve NLM V4.0 (up to 250 users)	1,295
ARCserve Solo	185
DIRECT ACCESS Network Menu	366
FRYE UTILITIES NetWare Management v1.1	324
Early Warning System v1.1	324
Lan Directory v1.1	278
INTEL LanDesk Manager	712
XTREE XTNET Network File Manager	305

Peer-to Peer Networking

Lantastic A/I Software	70
AE-2 Starter Kit	498
AE-3 Starter Kit	579
Lantastic For NetWare	300
Novell NetWare Lite 1.1	70
NetWare Lite coax starter kit (2 Stations)	420

- **All prices listed are cash prices.**
- **All orders shipped C.O.D. from So. S.F.**
- **Fortune 1000 companies and Government P.O. accepted on approved credit. Surcharge will apply.**
- **20% restock fee applies to all non-defective returns and refused shipments.**

FASTLINK

Network Products

1-800-788-LANS

- **Prices subject to change without notice.**
- **We are not responsible for typographical errors.**
- **Shipping & Handling charges will be added to all orders.**
- **Quantity pricing available for 10 units or more.**

Inside 415 Area Code (415) 872-1376

FAX: (415) 872-6634

chooses one of four "erotic" dancers and then plays the paper-scissors-rock game against the computer. If you win, a brief QuickTime clip of the dancer is played. The more you win, the more the dancer takes off. If you lose—you are forced to remove a file from your hard drive. Just kidding, but it would make computer strip poker more interesting.

The diverse capabilities and price points of Macintosh models have brought an equally complex mix of users. The changing face of the Macintosh community was evident in the crowds at the Expo.

Robert Lettieri, BMUG's multimedia guru, said that the pornographic software was interesting for the amount of attention it attracted—he was amazed at the crowds that the porno drew into the booths. "I saw a crowd of people around a monitor and wondered, 'What kind of product are they showing there?' I muscled my way over into the booth, stuck my head around, and there was a hard-core sexual scene. I thought, 'This is what digital media has come to?'"

He believes that next year there will be a separate section just for this kind of product. "If you want the slime, you will know exactly where to find it."

THE EXPO TOY SHOP

Here are some of the programs and hardware that caught my eye. I'm always attracted to unusual things that others overlook.

- I can never remember the hidden characters available to me by using the Option or Option+Shift keys. Although the KeyCaps desk accessory is the Apple-provided way to discover them, there's an even easier way with Gunther Blaschek's great PopChar Extension on BMUG Text C1 disk. It puts a small table of all the characters in the current selected font when you press the mouse with the cursor in a corner of your monitor. You can then drag the cursor to choose the one you want by sight. It also shows the ASCII number in case you need it for programming.

But what if you frequently use four or five extra characters? I'm never sure of the exact key to press, so I'm forced to call up PopChar over and over again. If this sounds like you, check out KeyCappers by the Diskette Gazette in Santa Clara. KeyCappers are little decals with little red characters that glue on your keyboard. They have a set for the American key map, and you can use as many, or few, as you want. Their fax number is (408) 262-8906.

- Macintosh serial ports are in heavy demand nowadays. You can easily have a modem, printer, special label printer, and MacRecorder, all wanting access to a serial port. The $159 list price AXiON switch gives you three more serial ports. But unlike older switch boxes, which required you to physically turn a knob, the AXiON is controlled in software through a Control Panel. This is really a cool way to make your Macintosh more convenient to use, and will save wear and tear on fragile serial connections.
- Everyone is upgrading their PowerBooks with modems, extra memory, and bigger hard drives. The "bigger" refers to capacity, not physical size, since there's barely enough room in a notebook's case for the 2.5" drive.

Several vendors were selling enclosures (the computer-speak for case) so you can use a PowerBook-sized drive externally. Micro Accessories from Fremont showed a $9 mounting bracket for the tiny hard disks that lets users put them inside any old Macintosh. Fax: (510)226-6316.

Another useful PowerBook accessory is the APP-3 Auxiliary Power Pack by Lind Electronic. The $99 list pack holds eight alkaline D-cell batteries, and can run the PowerBook for around eight hours. You can also use it as a club to fend off your office mates trying to fool around with your PowerBook.

- KeyTronic had a trio of interesting add-ons. If you like the layout of the PowerBook's keyboard, with the trackball below the keys (you should have your head examined), take a look at the TrakMate wristpad. In the middle of a platinum colored pad, they've put a four-button trackball. The PaceMate wristpad keeps track of the actual number of keystrokes entered by the operator and compares that number to settings in a Control Panel. Alarms

continued on page 222

UPCOMING EVENTS:

March 4	Brøderbund: Living Books and educational games; Adobe: Photoshop 2.5.
March 11	Midterms in Physical Sciences Lecture Hall. Sorry—No Meeting.
March 15	BMUG South at United Way Office in San José. No Hands Software: Magnet and Common Ground (file management utility); Brøderbund: Living Books and educational games.
March 18	Maxa: Snooper and Alert (diagnostic software); Quark XPress 3.1.
March 25	Insignia Solutions: Soft PC and Access PC (PC software on the Mac).
March 29	BMUG West at Exploratorium museum in San Francisco. Bering: Disk Café (SCSI utilities); Connectix: Infolog (document management and filing program).

Call the the BMUG Announcement Line for the latest information on BMUG meetings and great Special Interest Groups (SIGs)! (510)849-9114.

BMUG's Choice for Macintosh Specialty Store

MAC℠

Modern Accessories for Computers
Since 1985

800-BUY-A-MAC	Order Line for US & CA (Toll Free!)
(510) 644-0500	General Number / Sales Department
(510) 549-8785	Macintosh Repairs
(510) 644-0584	Order by Fax

2156A University Avenue, Berkeley, CA 94704

Rental, Lease or Purchase of Macintosh

Store Hours
10:00 a.m. -- 6:00 p.m.
MON -- SAT

ATM

TOP 10 Store in the Bay Area ... San Francisco Examiner Reader Poll

Modem

PowerPort Silver for PowerBook	**$395**
Supra 2400 Baud Modem W/ Cable	**$99**
Supra 24/96 FaxModem W/ Microphone	**$199**
Supra FaxModem v.32bis 14,400	**$359**
Teleport Gold v.32bis 14,400	**$459**
US Robotics Mac&Fax 14,400	**$359**

Printer

NEC SilentWriter Model 95 **$1499**
- True 300 dpi Adobe PostScript II Printer
- Twice the speed of Apple Personal LW NT
- 8000-Page Toner & Cable Included
- **$50 Rebate or 3-Year On-Site Warranty**

Canon 10ex/Power Print Bundle **$439**
- 360 dpi, Canon Bubble Jet Printer
- Compact, Portable--Perfect Powerbook Companion
- Ready to Hook Up to Any Macintosh

Memory Upgrade

1 Meg Simms, 100/120ns	**$39**
1 Meg Simms, 80ns	**$49**
2 Meg Simms, 80ns	**$89**
4 Meg Simms, 80ns	**$139**
4 Meg Simms, Centris, Quadra 800	**$169**
6 Meg Board, PowerBook	**$329**
4 to 8 Meg Board, PowerBook Duo	**Call**
4 to 10 Meg Board, PowerBook 180	**Call**

Mass Micro

DataPak Removable 44, W/ 1 Cartridge	**$539**
DataPak Removable 44, W/ 2 Cartridge	**$589**
DataPak Removable 88c	**$695**

- New Model, Read & Write44 & 88MB Format

Scanner

HP ScanJet IIc, w/ Mac Interface **$1495**
- 24 Bit Photo-Realistic Color / 256 Gray-Scale
- True Laser 400 dpi Resolution

UMAX 600dpi Color Scanner **$1195**
- 24 Bit Photo-Realistic Color / 256 Gray-Scale
- Best Rated Scanner by MacUser Magazine
- Includes Full Version PhotoShop 2.0 *Free*
- Amazing and Affordable 600 dpi Resolution

UMAX 800dpi Color Scanner **$1495**

Agfa Arcus 1200dpi Color Scanner **$2995**
- Fast, Photo Grade Professional Scanner
- Transparency Option Available
- Come to Store for a Test Drive

Radius

Radius Precision Color Pivot **$999**
- 256 Colors on IIsi, IIci, with optional Video Card

Radius Pivot **$795**
- Crisp, Clear Full Page Viewing
- Portrait and Landscape Views

Radius Precision Color 24XP **$509**
- 24 Bit Accelerated Card for 16" and 14" Monitors

Radius Color GX Card **$399**
- 24 Bit Accelerated Card for 14" Monitors

CLEARANCE

Abaton G/S Flat-Bed Scanner	**$695**
Microsoft Excel 3.0	**$99**
Microsoft PowerPoint 2.1	**$149**
Microsoft Works 2.0	**$99**
SyQuest 44MB Removable Drive	**$395**
PowerBook 170, ***4MB/80HD***	**$2695**
Radius TPD/19 Monitor, *Old Stock, New*	**$595**
Video Spigot, IIsi & LC w/ Premiere	**$279**

UNBELIEVABLE MACINTOSH PRICE BREAK

We have everything you need for your PowerBook

80 MB HD*	$349
120 MB HD*	$549
6 MB RAM*	$329
PowerPort Gold	$459
Full Cycle Charger	$139
SCSI Cable	$ 45
Carrying Case	Start$ 55

*Upgrade/Swap Price
Labor Charge Extra

New In Stock

Mac Centris 610
4MB/80HD ***$1679***
Fast 68040/20Mhz

PowerBook 160 4MB/40HD, *In Stock*	$2299
PowerBook 170, 4MB/40HD, *Mar. 8*	$2199
PowerBook 180 4MB/80HD, *In Stock*	$3799
Power Duo 210 4MB/40HD, *In Stock*	$2099
Mac Classic II 4MB/40HD	$899
Mac LCII 4MB/40HD	$919
Mac IIsi 5MB/160HD, *Avail. Mar. 8*	$1195
Mac LCIII 4MB/80HD, *NEW*	**$1289**
Mac IIvx 5MB/80HD/CD, *In Stock*	$2095
Mac Quadra 700 4MB	$2279
Mac Quadra 950 8MB, *In Stock*	**$4795**
Sony 1320 14" Trinitron w/ LC Adaptor	$424

Trade In Your Mac

SAVE on SALES TAX
- **We Buy or Trade Any Macintosh CPU (Mac Plus minimum) & Peripherals**
- **Save on Sales Tax - Only Pay Tax on the Difference to the Trade in**

Hard Disks

†External Unit Add $90 ea.

Quantum ELS 42MB HD	**$249†**	**Quantum 80MB Pocket HD**	**$449**
Quantum ELS 85MB HD	**$329†**	**Maxtor 213MB HD**	**$579†**
Quantum ELS 170MB HD	**$495†**	**Maxtor 535MB HD**	**$999†**
Quantum LPS 240MB HD	**$599†**	**Fujitsu 520MB HD**	**$1099†**

Macintosh Rentals

Security Deposit Required

Mac SE	PowerBook 170	Mac Plus	Mac IIcx 5/80
4MB/40HD	4MB/40HD	2MB/20HD	13" Color
$69	**$199**	**$59**	**$199**
Monthly	Monthly	Monthly	Monthly

Software Special

After Dark	$28	MacTools 2.0	$99
AppleTalk Remote Access	$169	Might & Magic III	$42
Arthur's Teacher Trouble	$42	Missions at Leyte Gulf	$26
Auto Doubler	$59	Norton Utility/SAM	$149
Battle Chess	$32	Norton Essentials	$76
Battle Chess, CD	$54	PGA Tour Golf	$39
Civillization, *New*	$44	Prince of Persia	$33
HardBall II	$33	Red Baron	$42
Hellcat over the Pacific	$45	Shanghai	$36
Kid Desk	$32	System 7.1	$99
Kid Pix	$34	Spaceship Warlock	$72
Lemmings	$39	Star Trek	$39

Prices Advertised Are for MicroTimes Readers Only. Please Mention This Ad When You Call or Visit Us.

This Ad Expires April 8, 1993

Why **ACCESS?**

EXPERIENCE QUALITY,

A Leader In Performance Systems

-5 Years of Business Experience

-$3 Million in Inventory

-Located in the Heart of Silicon Valley

-Over 2,000 Line Items to Choose From

-Well-Stocked 18,000 sq. ft. Showroom

-Factory Trained Technical Staff

-Authorized Sales & Service for Most National Name Brand Products

-Extended Warranty Available

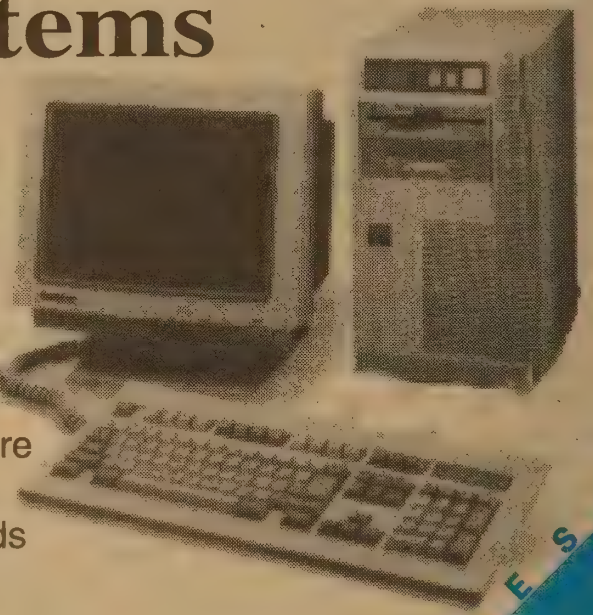
STORE HOURS

M-F 9-8

SAT-SUN 10-5

(Pacific Time)

The Powerful Desktop ACCESS Systems



ACCESS' high-speed machines provide exceptional performance and flexibility for long-term business needs. Delivers multitasking capabilities for easy handling of simultaneous applications.

And above all, ACCESS systems feature top quality materials, construction, reliability and support to meet the standards of the most demanding customers.

ACCESS

ACCESS 386DX-33 **$1019**

- Conner 80MB HDD • Video 7 VGA 256K Card
- Impression 1439 14" SVGA Monitor
- Deluxe Desktop or Mini Tower

ACCESS 386DX-40 **$1049**

- Conner 80MB HDD • Video 7 VGA 256K Card
- Impression 1439 14" SVGA Monitor
- Deluxe Desktop or Mini Tower

ACCESS 486DX-33 **$1499**

- Conner 120MB HDD • Trident SVGA 1MB Card
- Impression 1428 14" SVGA Monitor
- Deluxe Desktop or Medium Tower

Featured in Computer Shoppers "Incredible 486 Deals" January '93!

ACCESS 486DX-50 **$1729**

- Conner 120MB HDD • Trident SVGA 1MB Card
- Impression 1428 14" SVGA Monitor
- Deluxe Desktop or Medium Tower

All High Performance Systems Feature:

- Motherboard w/CPU
- 128K Cache expandable to 256K
  - 64K Cache on 386/40MHz
  - 256K Cache on 486/50MHz
- 4MB RAM expandable to 32MB
- 5.25"1.2MB & 3.5" 1.44MB FDD
- IDE hard/floppy disk controller
- Serial/parallel/game ports
- Math coprocessor socket
- Real-Time clock/calendar
- 101 enhanced key keyboard
- MS-DOS 5.0
- 72 hour extensive testing
- 1-year parts & labor warranty

Sales Hotline **408-247-4444**

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

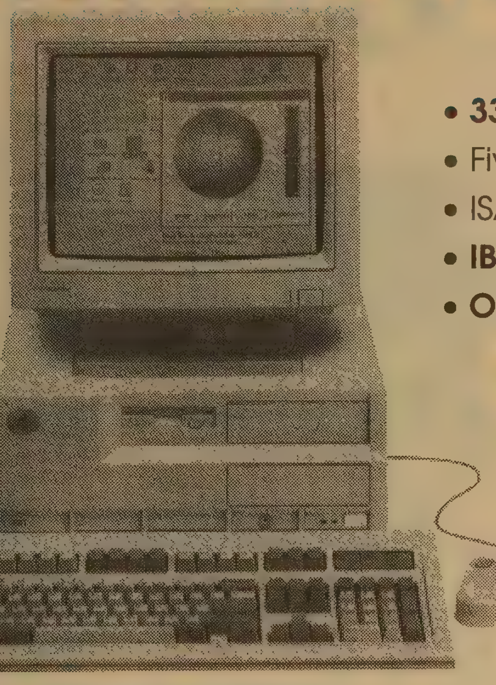
SERVICE AND MORE...

And Peripherals Since 1987.

IBM PS/ValuePoint 433DX

An Authorized IBM Reseller!

486DX/33MHz System


Monitor not included

- **33MHz IBM 486DX w/ Cache**
- Five expansion slots
- ISA architecture
- **IBM mouse**
- **One-year onsite warranty/HelpWare Line**
- **4MB RAM** exp. to 32MB
- 1.44MB 3.5" Floppy drive
- Intergrated SVGA card
- **Norton Antivirus 2.1**

$1329

SVGA .28mm Monitors

14" 6312 Low Radiation	$399
14" 6314 Digital Display	529
15" 6319 Flat Screen	649

386SLC25 2MB 80 MB HDD	$980
386SLC25 2MB 170MB HDD	1178
486SX25 8MB 80 MB HDD	1260
486SX25 8MB 170MB HDD	1480

EPSON®

WHEN YOU'VE GOT AN EPSON, YOU'VE GOT A LOT OF COMPANY™

An Authorized EPSON Reseller!

1-YEAR* ON-SITE WARRANTY!
EPSON
EPSON EQUITY 386SX
*Certain Restrictions Apply

Name Brand...At A Clone Price!

Equity 386SX-16Plus

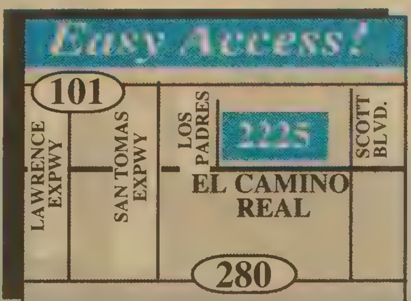
- **16MHz 386SX**
- **3.5"** or **5.25"** FDD
- Intergrated SVGA card
- 101 key keyboard
- **2MB RAM** exp. to 14MB
- **12" Mono VGA Monitor**
- **40MB** Hard Drive
- **One-year onsite warranty**

$499

Options:	Add
• Color VGA 640 x 480	$140
• Color SVGA 1024 x 768	200
• DOS 5.0	49
• Windows 3.1	59

CALL US! Other Models Available.

ACCESS
COMPUTER TECHNOLOGIES


Easy Access!
101
LAWRENCE EXPWY
SAN TOMAS EXPWY
LOS PADRES
2225
SCOTT BLVD.
EL CAMINO REAL
280

2225 EL CAMINO REAL SANTA CLARA, CA 95050

ACCESS THE BEST

Catch The Local Bus!

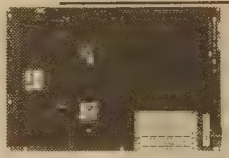
VLB-VESA Local Bus 486-33MHz

FEATURES a GENOA motherboard

- **4MB RAM** exp. to 32MB on-board
- **GENOA VLB** 8500 VGA card
- 101-key enhanced keyboard
- **GENOA VLB** IDE Controller
- 1.2MB, 5.25" floppy disk drive
- **256K** Cache memory
- 2 serial, 1 parallel and 1 game port
- **CONNER 170MB**, 15ms hard drive
- **Viewsonic** 6E Non-Interlaced monitor
- Deluxe medium tower case

Genoa SYSTEMS CORPORATION

$1729



SUPERBOARD 486 VLB

The Local Bus motherboard that delivers unsurpassed power w/ 256K Cache

two 32-bit Local Bus slots for high performance video or IDE controller • six 16-bit AT expansion slots • up to 32MB on-board RAM • OPTI chipset • surface mount design

DX33 / DX2-50 / DX2-66MHz	**$299**
DX50MHz	**$349**

*CPU not included

SOUND PRODUCER PRO

The most complete stereo sound system available for your IBM AT or compatiblesupport for four sound standards

- ships with many more audio utilitites, such as CD Player, Jukebox, Monologue, Orchid Voice Notes, and more
- includes free stereo speakers and a microphone

$189

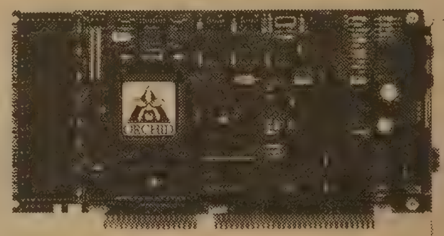
VLB IDE Controller $79

ORCHID

FAHRENHEIT VA

The scorchingly fast Windows accelerator with voice annotation capabilities

on-board graphics processor • resolutions to 1280 x 1024 • includes Orchid HyperDrive
• includes Orchid Voice Notes and microphone



ISA	**Fahrenheit**	**VA 1MB**		**$219**
VLB	**Fahrenheit**	**VA 1MB**		**229**
ISA	**Fahrenheit**	**VGA 1MB**	(No Audio)	**169**
VLB	**Fahrenheit**	**VGA 1MB**	(No Audio)	**179**

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

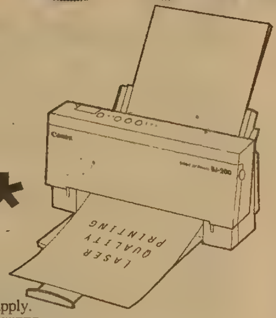
VALUES IN TOWN!

An Authorized CANON Reseller & Service Center

BJ-200 Laser Quality... **Canon**

At an InkJet Price!

4 out of 5 preferred the BJ-200 over HP!



- Prints up to 4ppm
- 7 resident fonts
- 100-page sheet feeder
- Hold up to 10 envelopes

$329*

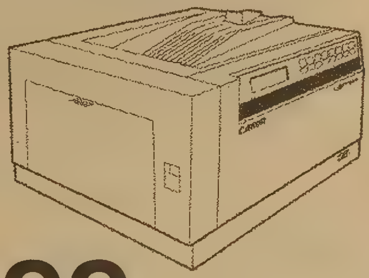
In-Store Price $379

*Price reflects a $50 end-user mail-in rebate. valid thru May 31, 1993: Some restrictions apply.

LBP-4sx Laser Beam Printer

PCL-5!

Quiet Personal Laser Printer!



- 4 pages per minute
- 1MB RAM
- Auto emulation switching
- Printer sharing
- Quiet 42dbA operation

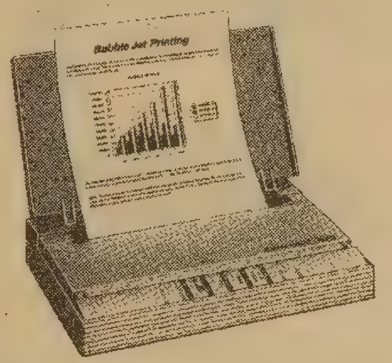
$699

BJC-800 Color Bubble Jet **1599**

BJ-5

Portable Bubble Jet

Light Weight & Portable!
Perfect for any notebook or Laptop!



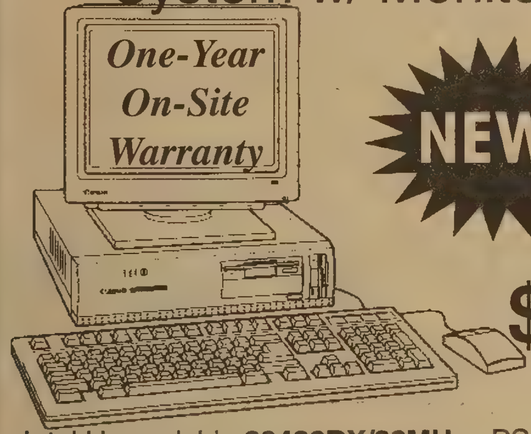
Identical to BJ-10ex

$189

- Prints up to 83cps
- Text & graphics up to360dpi
- Uses plain paper & transparencies
- 2-year warranty

INNOVA 486v
Complete Desktop
System w/ Monitor

Canon



NEW!

Fully Loaded Ready to Plug-n-Play!

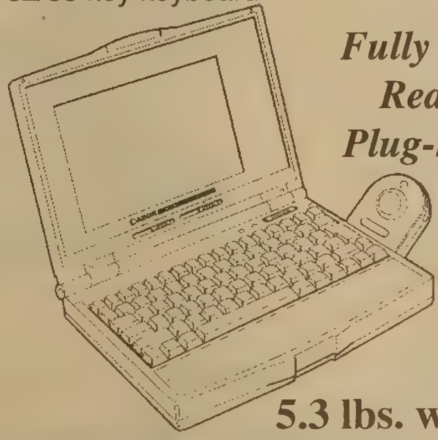
$1899

- Intel Upgradable **80486DX/33MHz**
- **4MB RAM** exp. to 34MB on-board
- 3.5" 1.44MB, 5.25" 1.2MB FDD
- **210MB** 16ms hard drive
- Super VGA VRAM Video card
- Canon **Color 14" SVGA .28mm**
- **Fax/Modem** (96/48 S/R,2400 data)
- PS/2 type mouse
- Mouse pad
- Factory installed software:
- MS-Dos 5.0
- MS-Windows 3.1
- MS-Works for Windows
- **One-Year** Roadside Warranty

486SX/25MHz 4/130MB HDD. **1499**

INNOVA 386NX
Notebook

- AMD **386SXLV/25MHz**
- **4MB RAM** exp. to 8MB on-board
- 3.5" 1.44MB floppy drive
- **60MB** 16ms hard drive
- 10", 64 gray scale backlit VGA
- **Fax Modem** (96/48 send /receive)
- 82/83 key keyboard
- Logitech trackman mouse
- Factory installed software:
- MS-Dos 5.0
- MS-Windows 3.1
- MS-Works for Windows
- Win-Fax
- **One-Year** Roadside Warranty



Fully Loaded Ready to Plug-n-Play!

NEW!

$1450

5.3 lbs. w/battery!

ACCESS

COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

STORE HOURS:

MON-FRI 9-8

SAT-SUN 10-5

MOBILE COMPUTING...

Huge Selection of Notebooks

TOSHIBA

Ready to Run!

Satellite T-1800

386SX-20MHz w/2MB & 60MB HDD

AUTO- "shut down", CPU "sleep" mode, Resume electronic bookmark & more...

DOS 5.0 Pre-Installed

$1299

- VGA, parallel, keyboard & PS/2 mouse ports
- 64 shades of gray • Toll-free support • 1-year warranty

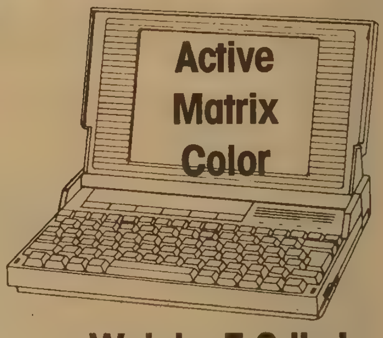
T-1850	386SX-25 2MB /80MB HDD	**$1699**
T-1850X	386SX-25 2MB /120MB HDD	**1995**
T-3300	386SL-25 2MB /80MB HDD	**1995**
T-1850C	386SX-25 COLOR 2MB /120MB HDD	**2599**

SHARP®

PC-6891

386SL/25MHz

COLOR



Weighs 5.9 lbs!

$2799

- **4MB RAM** exp. to 8MB
- **120MB** HDD
- Active Matrix Color VGA
- Built-in trackball
- 4-level power manager
- Includes DOS 5.0
- Built-in "IC" card slot

6785	386SL-25 4MB /80MB HDD	**$1599**
7700	486SX-25 4MB /124MB HDD	**2099**
7750	486DX-33 4MB /124MB HDD	**2499**

altima

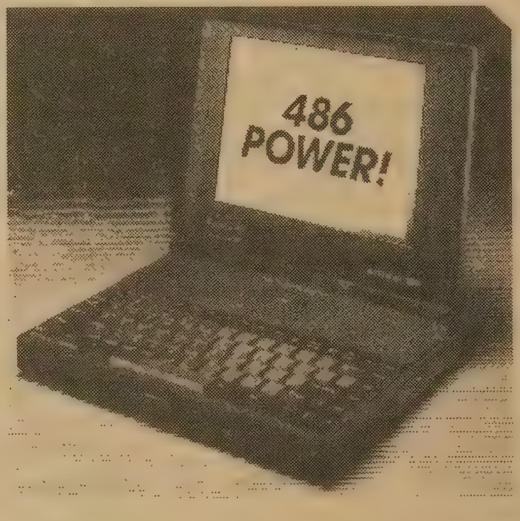
- Upgradeable Processor
- Only 5.7 lbs. w/ Battery
- Intergrated Built-in Trackball Available
- Internal Modem w/MNP5 & Fax Available

Fast! 486's

The fastest processor in a notebook computer!

486SLC/33MHz
2MB RAM
80MB HDD
$1850
#NBA433L

486SLC/33MHz
2MB RAM
120MB HDD
$2099
#NBA433L2



486SX/25MHz
4MB RAM
120MB HDD
$2399
#NBA25120

486DX/33MHz
4MB RAM
120MB HDD
$2699
#NBA433DX

• **8KB Cache** • 64 shades of gray

• 84 key standard keyboard • **Autoswitching AC 110/220V**

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

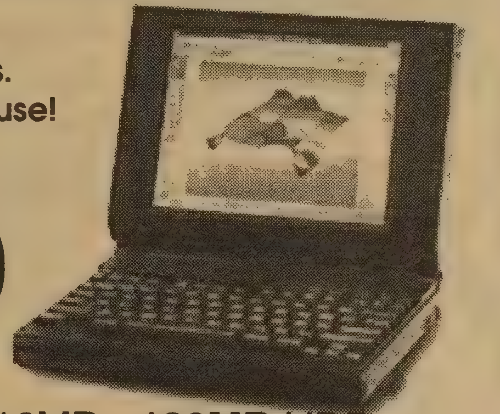
FOR PEOPLE ON THE GO!

And Notebook Accessories.

IBM ThinkPad 700

486SLC/25MHz Notebook

Weighs Only 6.5 lbs.
3.8 hrs. of continuous use!



$2899

- **4MB RAM** exp. to 16MB
- 16-bit VGA screen
- Power management
- 84 keys w/ TrackPoint II
- **120MB** HDD
- Data/Fax modem
- Includes DOS 5.0
- 3-year warranty

700 Color 486SLC/25MHz 4/120MB HDD **$4199**

Stop your computer from "Crashing!"

RHINO Notebook/Laptop Carrying Case

There are cases...
*And there are **RHINO** cases!*

HARD PROTECTION/SOFT BAG

CELLULAR ARMOR™ A high density thermoplastic with a double-wall honeycomb design which *elastically disperses any shock.* It protects valuable equipment from damage, shooting the shock out and away, and is also a great insulator against heat and cold.

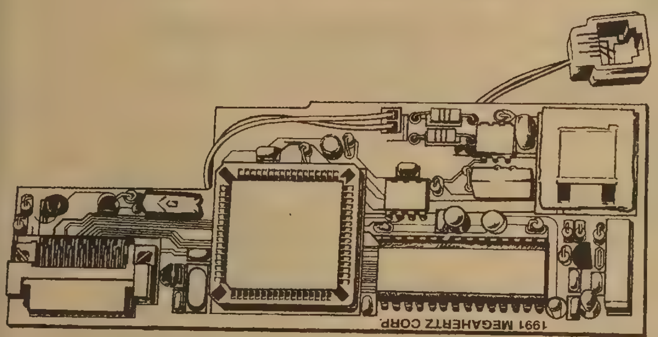
More Than 12 Models In Stock!

INNOVATIONS '91 DESIGN & ENGINEERING AWARD CONSUMER ELECTRONICS SHOWS

Starting from.. **$39.95**
Model AC-21

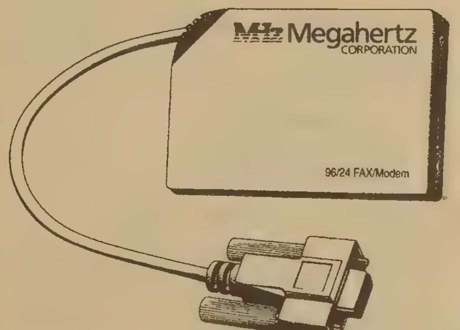
Megahertz CORPORATION

The Leader in Notebook Data/Fax Modems


1991 MEGAHERTZ CORP.

All Megahertz Notebook Data/Fax Modems include:

- MNP-5 & V.42/V.42bis error correction and data compression
- send and receive FAX
- WordPerfect's MTEZ data/fax communications software for DOS and Eclipse fax software for Windows
- Toll-free technical support
- 5-year warranty

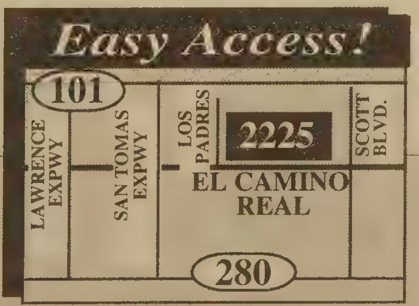


DATA & FAX SPEEDS:	Internal		External
	TOSHIBA	COMPAQ	POCKET DESIGN
14,400bps data/14,400bps FAX	$529	$499	$389
9600bps data/9600bps FAX	$499	$479	$329
2400bps data/9600bps FAX	$219	$229	$199

ACCESS

COMPUTER TECHNOLOGIES

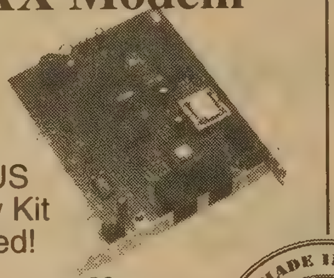
2225 EL CAMINO REAL SANTA CLARA, CA 95050



ALWAYS A HUGE SELECTION OF

Sales & Service Open 7 Days a Week

9600bps Internal FAX Modem



- Enhanced AT command set
- CCITT V.54-Local digital & analog, remote digital loopback
- Auto speed & communication adaption
- **2400 bps data**
- Supports COM 1-COM 4
- Quick Link II Fax software
- 3-year warranty

BONUS
Prodigy Kit
included!

9600send/48receive class I	69.00
9600send/96receive class II	89.95

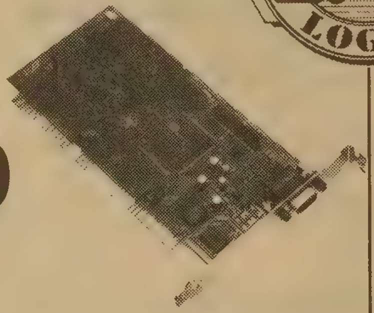
2400bps Internal Modem

- Enhanced AT command set
- CCITT V.54-Local digital & analog, remote digital loopback
- Auto speed & communication adaption
- Call progress monitoring
- Full & half duplex/2 wire dialup
- Supports COM 1-COM 4
- 3-year warranty

Modem w/ Quick Link II	44.95
Modem w/ Prodigy Kit	49.95

MADE IN USA
P.C.
LOGIC™

16-BIT *VCOLOR* SVGA



$129

- **1MB memory**
- **16.7 million colors at 640 x 480**
- **1280 x 1024 (interlaced)**
- **72Hz refresh rate • 3-year warranty**

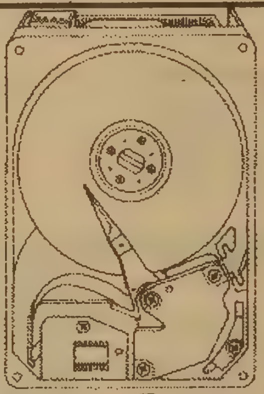
14.4 Fax Modem w/ MNP-5 V.42

- CCITT V.32 (9600bps)
- MNP-5, CCITT V.42bis BTLZ
- CCITT V.54-Local digital & analog, remote digital loopback
- Auto speed & communication adaption
- Call progress monitoring
- 38,400bps maximum data throughput
- Quick Link II software
- 3-year warranty

Internal Modem	239
External Modem	279

Maxtor Hard Drives

Reliable High-Performance Magnetic Drives to Meet Your Most Demanding Jobs!



CONNER Hard Drives

Advanced Technology, High Performance, Quality and Value.

120MB 15ms IDE $259	**213MB** 15ms IDE $349
340MB IDE or SCSI 15ms $599	**535MB** 12ms IDE $899

119MB 19ms IDE $259	**170MB** 15ms IDE $299
200MB 12ms IDE $349	**513MB** 12ms IDE $799

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

MONITORS & GRAPHIC CARDS

Name Brands...At Low Low Prices!

MAGNAVOX

Smart.Very smart.®

- Autoscan capability to support VGA, super VGA, VESA 56/60/72Hz, 8514/A, XGA, MAC II and many other graphics formats
- .31mm dot pitch
- Analog inputs (5 BNC) allow for a virtually infinite number of colors to be displayed
- Video amp dot rate of 110MHz

17" AutoScan Color Display

- Up to 1024x768, Non-Interlaced
- Horizontal scan from 30 to 57KHz
- Vertical scan from 50 to 100Hz

$799

20" AutoScan Color Display

- Up to 1280x1024, Non-Interlaced
- Horizontal scan from 30 to 64KHz
- Vertical scan from 50 to 90Hz

$1399

SONY®

NEW!

14" CDP-1430 SVGA Monitor

The CPD-1430 features: enhanced image quality, high resolution, high refresh rate, digital microprocessor control via push buttons and overscanning for edge-to-edge screen images.

- Up to 1024x768, Non-Interlaced
- .25mm dot pitch
- 72Hz fresh rate
- Multiscan, trinitron tube
- Meets Swedish Standards for VLF/ELF Magnetic Emissions

IBM & MAC compatible!

$629

1320	14" 640 .25mm....	$339
1604S	17" Non-Interlaced .	999
1936	20" .30mm	2188

NANAO F550i

17" SVGA Monitor

$1099

PC MAGAZINE EDITORS' CHOICE

IBM & Mac Compatible

- Up to1280x1024, .28 mm dot pitch
- Flat Screen
- Analog RGB input
- **Low Radiation**

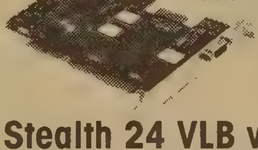
9080i 16" SVGA **$995**

DIAMOND Computer Systems, Inc.

STEALTH 24-BIT

Windows Accelerator Card

- 1280 x 1024, 16 colors non-interlaced
- Displays 16 million colors in windows
- 1MB RAM



$219

Stealth 24 VLB version $249

BOCA

SuperX VGA Card

$149 *Supports Windows 3.1*

- 1280 x 1024, 16 colors non-interlaced
- Displays 16 million colors in windows
- 1MB RAM
- 72Hz refresh rate
- 5-year warranty

VIDEO SEVEN

VGA CARD

800x600 256K

$25

ViewSonic™ 7

17" SVGA Monitor

$1029

PC MAGAZINE EDITORS' CHOICE

Rated #1 by InfoWorld!

- Up to1280x1024 , .28 mm dot pitch
- 30-64 kHz scan frequency
- Auto 110/220V
- Analog RGB input

Viewsonic 1	**$239**
Viewsonic 6E	**369**

ACCESS

COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

STORE HOURS:

MON-FRI 9-8

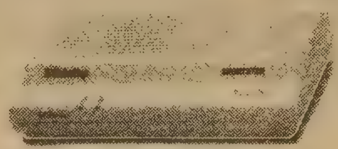
SAT-SUN 10-5

The Intelligent Choice...

Serving the Community Since 1987.

USRobotics®

The Intelligent Choice in Data Communications



**The Easy-To-Use Modem
for People Who Think Like The Pros.**

Sportster 14,400 Fax Modem
CCITT V.32 bis with V.42 bis

- Asynchronous, full-duplexing communications from 14,400 to 300bps:
- -CCITT V.32 bis at 14,400/12,000bps
- -Additional CCITT and Bell compatibility with 2400/1200/300 dial-up modems
- -CCITT V.25 for calls originating outside the U.S. and Canada
- Error control (both CCITT V.42 & MNP 2-4)
- Data compression (both CCITT V.42 bis & MNP 5) for throughput up to 57,600bps!
- Auto-Answer/Auto-Dial
- Nine LED status lights

**SUPER VALUE
Lowest Prices Ever!**

Internal $240
External 265
External MAC version 325

**NORTHGATE
COMPUTER
SYSTEMS, INC.**

Authorized Dealer

**PS/2,
AT&T,
Tandy
Available**

OmniKey™ Keyboards

101S / 101NI $59/79
102 79
UltraT / UltraF 99
Skin Protectors ...... 19.95 each

UFOMATE

Pocket-Size Fax Modem

100% error free transmission
Blasting modem speed up to 57,600bps
V.42bis and MNP5 data compression
Low power consuption
9600 bps send and receive fax
QuickLink II Software and 9Volt battery included

P1496MX $299
14,400bps Modem/9600 Fax

P9696MX $279
9600bps Modem/9600 Fax

P9624MX $129
2400bps Modem/9600 Fax

E • T E C H

ETHERNASCAN™

HANDHELD SCANNERS

256 Gray Scale

Real-time display
100-400 dpi resolution
B/W, dithered, & gray scale modes
TIF, PCX, MSP, CUT, IMG formats
Scanned image is independent of monitor display
Includes EZimage software & development tool kit

$99

4096 Colors

$269

Real-time display
100-400 dpi resolution
Color, B/W, dithered color, & gray scale modes
TIF, PCX, MSP, CUT, IMG formats
Scanned image is independent of monitor display
Includes EZimage software, iPhoto for Windows & development tool kit

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

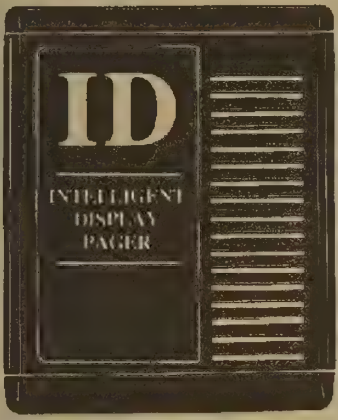
Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

ACCESS COMPUTER

...Personal Service, Value & Pricing!

Now! You're always in touch!

Brand New!



18 Message Memory
Vibrate-Silent Alert
Memory Saver
Low Battery Indicator
And More...

$69

- *NO ONE TURNED DOWN!*
- *INSTANT ACTIVATION 7 DAYS A WEEK!*
- *LARGE SERVICE COVERAGE AREA!*

NEW MOTOROLA Pagers Starting at: $79

***Name Brand* Pagers at your *ACCESS* Now!**

POSITIVE COMMUNICATIONS, INC.

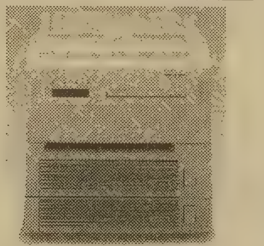
SHARP®

JX-9500H

9 pages per minute!

- •300dpi resolution
- •512K exp. to 4.5MB
- •6 resident fonts
- •HP II, Epson, IBM & Diablo emulation

$629



JX-9600

600 dpi resolution!

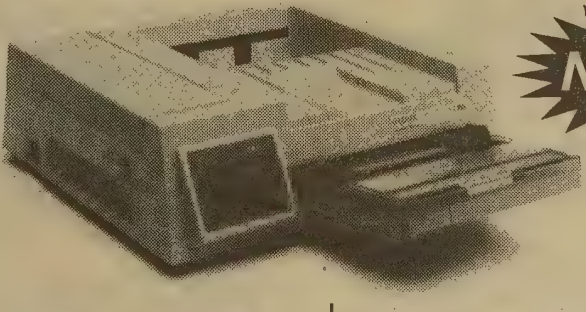
- •Fast 8ppm, RISC processing
- •PCL-5
- •1MB exp. to 9MB
- •27 resident fonts
- •Two 250 sheet paper trays

$1199

JX-9600PS PostScript version **$1499**

OKIDATA® *LED Page Printers*

OKI OK!



OL400.

PC Magazine® Editors' Choice.

- Industry's best warranty: 5 years on printhead, 1 year parts/labor on printer
- PC Magazine Editors' Choice- June 12, 1990
- 4ppm, 300dpi: crisp blacks, publication quality output
- More standard typefaces/fonts than LaserJet™ IIP
- High-capacity 200-sheet paper tray included
- HP® Series II compatible
- Design fits any desktop

$599

NEW!

OL810.

With OKI Smoothing Technology™ PCL-5 Scalable Fonts

- Industry's best warranty: 5 years on printhead, 1 year parts/labor on printer
- OKI Smoothing Technology™ for 1200dpi apperance
- 8ppm, 300dpi: crisp blacks, publication quality output
- 1 MB RAM exp. to 5MB, 13 HP III scalable fonts
- High-capacity 200-sheet paper tray included
- HP® Series III compatible
- Optional RS-232 Serial interface

CALL

9-PIN

- **•ML-320/321** 300cps...............$319 /459
- **•ML-520/521** NEW! auto form sensing CALL
- **•ML-3410** Fast 550cps! 8-part forms . 1299

24-PIN

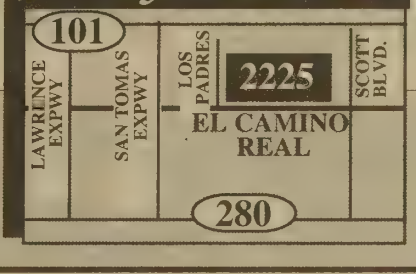
- **•ML-380** 192cps, 63cps 229
- **•ML-590/591** auto form sensing 469/599
- **•ML-393+** Fast 520cps Wide Carriage 949

ACCESS

COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Easy Access!



A HUGE SELECTION

Thousands of Printers in Stock!

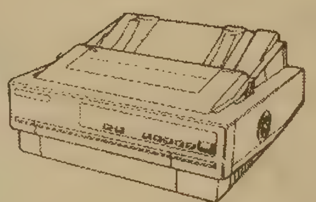
EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

Lowest Price Guaranteed!

LQ-570 ESC/P2™ EPSON SCALABLE FONTS • ENHANCED GRAPHICS LQ-1070

$239



$359

- 24-pin, 315cps
- 12 built-in fonts
- 2 year warranty

- 24-pin, 315cps
- **WIDE Carriage**
- 2 year warranty

DOT MATRIX

LQ-510 FREE Multi-font Module	$219
LQ-870	469
LQ-1170	599
LX-810 *9-pin 80 column*	169
LQ-2550 *24-pin 400cps*	899
FX-870/1170 *NEW*	269/359
DFX-5000 *9-pin 530cps*	1299

ActionLaser 1000

NEW!

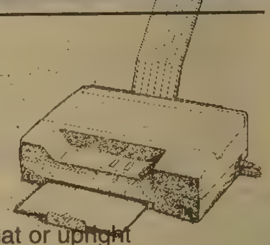
- 6ppm
- 512K Ram exp. to 6.5MB
- 14 standard fonts
- 1 cartridge slot
- 150-sheet universal tray
- HP IIP, PCL-4 emulation
- 2 year warranty

$689

ActionLaser 1500 PCL-5 $829

ActionPrinter AP-3250 24-Pin

$179 Ideal for home use! Easy Operation

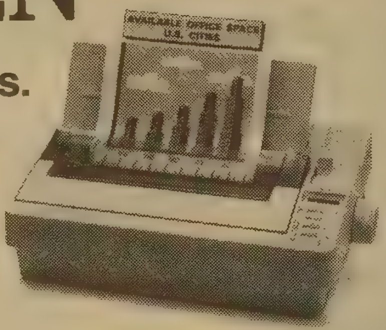


- Innovative, space-saving case design • Operates flat or upright
- 50-sheet 8 1/2" x 11" paper tray • scalable fonts
- Simple two-button control panel • Quiet operation
- 2-year limited warranty

AP-2250 9-pin version $129

CITIZEN™

The Best in the Business.
Featuring
Color On Command™



$199

GSX-130

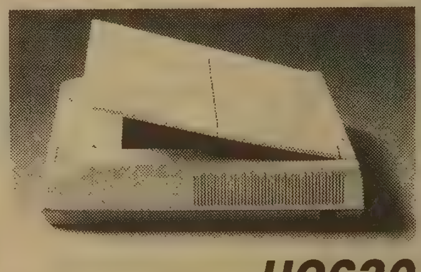
- 24-pin printe r • 180cps, 60cps LQ
- 5 Built-in fonts • Fontlocking feature
- Paper parking • Features Command-Vue II™control panel
- Optional Color On Command™• 2 Year limited warranty

Color On Command Option: $49

GSX-140 plus 24-pin 220cps, 6 fonts	$269
GSX-230 24-pin 270cps, 8 fonts	259
GSX-240 24-pin 300cps, 13 fonts	309

UMAX®

The Image Expert.



UC630

Rated #1 by
- PC-Computing-June 1992
- PC-Source-April 1992

True 600dpi 24-Bit Flatbed Color Scanner

Great for all your desktop publishing needs!

- 16.8 million colors, 24-bit design
- Scaling to 100% in 1% increments
- 600 x 600 dpi resolution
- Built-in SCSI interface
- Includes Imagein Color®
- MAC version available

$1199

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

OF PRINTERS!!!

An Authorized PANASONIC Reseller & Service Center

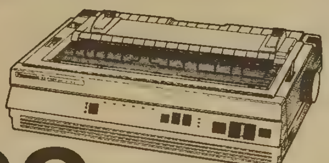
PRINTER RIBBON
by PANASONIC
KX-P115
$5.99
For: KX-P1180/
1191/1695/2150

Panasonic
Office Automation OA

SAVE up to $150

2-YEAR WARRANTY

KX-P1123



- 24-pin
- 240cps, 63cps LQ
- 7 built-in fonts
- 2 year warranty

$169

KX-P1124i	24-pin ,300cps, 8 built-in fonts	$219
KX-P2123	24-pin, 240cps, color capable	199
KX-P2180	9-pin, 240cps, quiet series	139
KX-P2624	24-pin, 300cps, quiet series	299

*THESE ARE FACTORY REMANUFACTURED & FULLY GUARANTEED

HEWLETT PACKARD

DeskJet 500		$399
DeskJet 500 Color		529
DeskJet 550C		719
IIP*Plus*	4ppm, PCL-4	799
IIIP	4ppm, PCL-5	999
IV	8ppm, 600dpi, PCL-5	1399
IIID	8ppm, dual tray, PCL-5	2295
IIISi	17ppm, auto interface switch	3399

Toner Cartridges

III	II/IIIP
$75	$59
PTC100	PTC150

manufactured by CANON

COLOR PRINTERS

PaintJet	699
PaintJet XL300	2299

SCANNERS

ScanJet IIP with interface	799
ScanJet Color with Interface	1450

It doesn't Scream, ...
it whispers.

Panasonic
Office Automation OA

The *QUIET* Series Printers

Come Hear the Difference! **43.5 dBA!**

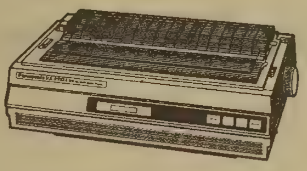
KX-P2123
- 24-pin letter quality
- 240cps, 64cps LQ
- 6 fonts, paper parking
- 2 year warranty

$238

2100 Series Color Option Available $49.95

KX-P2124
- 24-pin letter quality
- 320cps, 85cps LQ
- 8 fonts, 360x360
- 2 year warranty

$319



KX-P2180
- 9-pin matrix
- 192cps, 38cps NLQ
- 6NLQ fonts, (45 dBA)
- 2 year warranty

$159

FREE
Adobe Type Manager!
W/ Purchase of
2624, 2124, 2123

KX-P2624
- 24-pin letter quality
- 300cps, 100cps LQ
- 11 fonts, 26K buffer
- 2 year warranty

$378

KX-P4455
PostScript Laser

$1698

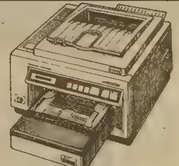
- 2MB RAM exp to 4MB
- Two 250 sheet paper trays
- 39 PostScript fonts • 11PPM

POSTSCRIPT

Accessories for 4455/4450i	
Legal Tray	$49
Envelope Tray	69
Toner	39
Drum Unit	149
Developer	99

KX-P4450i $1098

KX-P4430
Laser Printer

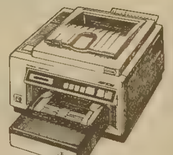


$888

Scalable Fonts!

- 1MB RAM exp to 5MB
- **PCL-5 Scalable**
- 300 dpi resolution • 5 PPM
- 200 sheet paper capacity

KX-P4410
Laser Printer



FREE Adobe Type Manager!

$599.99 *5ppm!*

- 512K RAM exp to 4.5MB
- 200 sheet paper capacity
- 300 dpi resolution • 5 PPM

DOT MATRIX

KX-P1180i	$149	KX-P1695	$348
KX-P1124i	289	KX-P1624	348

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

STORE HOURS:

MON-FRI 9-8

SAT-SUN 10-5

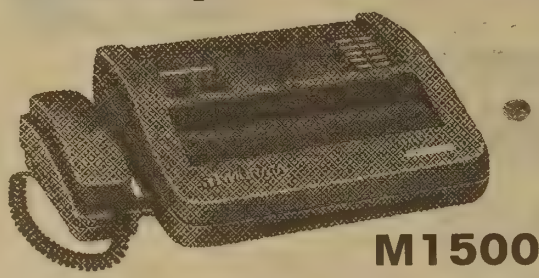
ACCESS IS NOW YOUR

Sales & Service Is

MURATA™

As your communications needs grow, you can rely on Murata. Backed by toll-free telephone support, sales and service networks nationwide, and our Full Circle Service™ program (which even includes house calls if necessary), featuring 90-day parts/labor on-site warranty. Murarta fax machines are built for the most important business in the world. Yours.

Quality Faxes, At Affordable Prices!



M1500

$399

The Desktop Business Fax... With Automatic Paper Cutter

- Auto paper cutter
- 10-page auto doc feeder
- 16-level grayscale
- Stores up to 20 numbers
  -10 one-touch, 10 speed-dial
- Prints conformation reports
- And much more...

Quality *IMAGE-MATE* Fax Paper by Murata

Hurry! Limited Quantity!

2 ROLL 49' PK #FAP482	$3.99
4 ROLL 98' PK #FAP984	$9.99

Fax, Phone & Copier For the Home

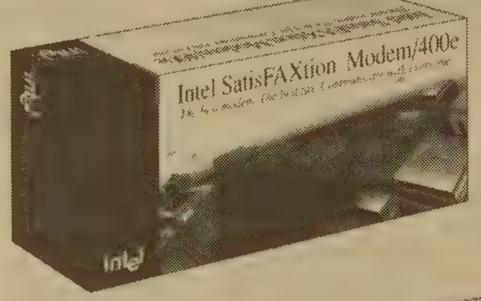
- 20-number autodialer
- Weights 5 1/2 lbs.
- Fine resolution mode
- Built-in, pre-recorded "voice-on-chip" prompt

UltraCompact Design!

$338

M750

intel



SatisFAXtion® Modems

The best modem. The best fax. Communicate with everyone.

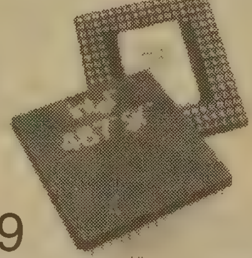
100	Internal 2400bps modem, group 3 fax	$99
200	Internal 2400bps/V.42bis • Up to 9600bps	299
400	Internal V.32bis/V.42bis • Up to 57,600bps	399
400e	External V.32bis/V.42bis • Up to 57,600bps	469

OverDrive™ Processors

The powerful performance booster

Improves overall system performance by up to 70%

486SX 16/20	$499
425DX	499
425SX	499
486DX 33	669



Math CoProcessors

Instant acceleration for your power applications.

80387SX	$88
80387DX	88
80387SL	88
80487SX	499

Sales Hotline 408-247-4444

Technical Support 408-247-4990 Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

HOME OFFICE CENTER

Open 7 Days A Week.

MEDIA VISION

NEW!

FUSION CD 16

SUPER BUNDLE!

Internal CD-ROM System Including:

- SONY internal CD-ROM Drive
- 4 Top CD Library Titles
- Pro Audio Spectrum 16 Sound Card
- Two Labtec Stereo Speakers
- And More...

FREE CD Storage Holder!
*With the Purchase of any CD-ROM System
#CDD1161
Only at ACCESS!

PC Multimedia PC

FUSION CD 16

$499

Fusion CD	$399
Pro Audio Spectrum 16	$189

TOSHIBA

External CD-ROM Drive

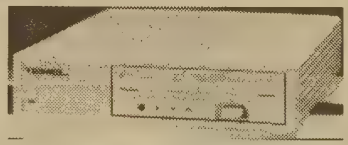
Super Fast 200ms Speed

$649

*Interface not included

TEXEL

High-Performance Double-Speed CD-ROM Drives

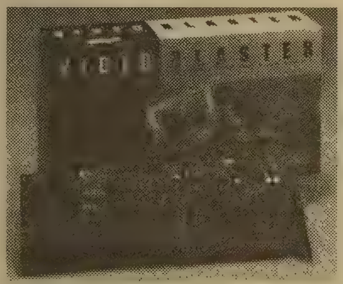


- Fast 265ms average access time
- 300 KB/sec data transfer • SCSI-2 compatible

External Drive Only	$549
External Bundle	829

CREATIVE

CREATIVE LABS, INC.



VIDEO BLASTER

- Display full-motion video in a Window, overlay computer text & graphics on video
- Freeze, store, manipulate & export images from VCR's video discs, video cameras
- Digital-analog sound mixer & programmable volume controls
- And much more...

$349

SOUND BLASTER PRO *BASIC*

- Top-quality sampling w/ 8-bit stereo digitized voice channel-4-44.1KHz sampling rate
- 4-operator, 20-voice stereo FM music synthesizer
- CD-ROM interface for Creative Labs or Panasonic CD-ROM drives
- Windows 3.1 and Sound Blaster compatible

$149

FREE CD Storage Holder!
*With the Purchase of any CD-ROM System
#CDD1161
Only at ACCESS!

The All-in-One Multimedia Solution for the PC!

SOUND BLASTER MULTIMEDIA UPGRADE KIT

$499

Computer ResellerNews Editors' Choice

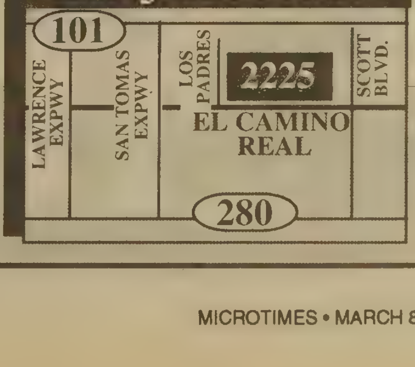
- Sound Blaster Pro Sound Card
- High performance CD-ROM drive
- Huge bundle of software & CD-ROM titles
- MPC compatible • And much more...

ACCESS

COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Easy Access!

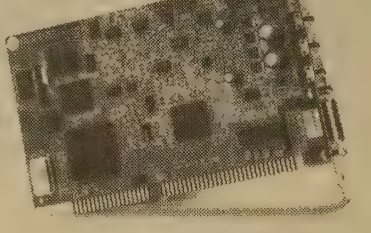


SHOP ACCESS FOR

From PCs...To Faxes...To Phones...

LOGITECH

SOUNDMAN 16



Highest Fidelity Sound Available:
- 16-bit stereo playback & recording
- Sampling/playback rate 2KHz-44KHz
- Yamaha OPL-3 stereo synthesis chip w/ 4 operators generating 20 voices
- Dynamic filtering from 4Hz-20KHz
- frequency response: 30Hz-20KHz

Input / Output:
- Stereo amplifer output at 4 watts channel
- Drives 4 or 8 ohm speakers
- Microphone & line-in inputs
- IBM-standard joystick port
- Accepts CD-Audio input from CD-ROM drives (optional)
- MIDI port (optional)

NEW!

16-BIT
CD-QUALITY
SOUND CARD

FREE Game from Accolade!
w/ purchase*

$199

* Certain restrictions apply. Expires Aug. 31, 1993

ADS117

PSION SERIES 3

Unquestionably, The Most Powerful Pocket-Sized Computer In The World!

More than just a computer, it comes with a complete range of built-in software...

- Word Processor & Outliner
- Time & Personal Management
- Computer Calculator
- Powerful Graphics Programming Language
- Database & Spreadsheet
- Automatic DTMF Dialing
- Communications facilities
- World Information

*Psion Series 3
puts the concentrated power
of a desk top computer
and its software...
into your pocket.*

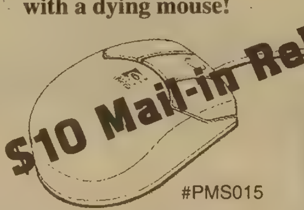
$399

LOGITECH

MouseMan™

High Resolution Serial PS/2 Mouse

Don't be caught with a dying mouse!



$10 Mail-in Rebate!

- 400dpi resolution
- Three programmable button flexibility
- New ergonomic design
- Enhanced MouseWare™ Utilities
- Windows™ 3.1 compatible
- IBM PC, XT, AT, PS/1, PS/2 compatible

#PMS015

TrackMan™

NEW!

High Precision Stationary Mouse

Designed for Comfort and Precision

$10 Mail-in Rebate!

- Three programmable button flexibility
- New ergonomic design
- Enhanced MouseWare™ Utilities
- Guaranteed to work with all Windows™ and DOS applications

#PML100S

Prices too Low to Advertise!

Call Us!

ScanMan™

NEW!

Hand-Held Color Scanner

Add the Impact of Color!

- 24-bit hardware, captures 16.8 million colors
- Virtual page scanning-auto stich, multiple scans together
- Total system calibration-color matching
- Saves images in TIFF, BMP, PCX, JPEG & EPS formats
- Supports Windows™ (OLE) & TWAIN protocols

#PMS254

TrackMan™

Superior Performance

Portable Mouse

See and feel the difference

- Small, lightweight and portable, three-button support
- Made to travel, includes sturdy casing & padded case
- Right or left hand w/ re-routable cable
- One piece simple spring clamp installation
- LogiPanel programming buttons in Windows
- Limited lifetime warranty

$10 Mail-in Rebate!

#PML100P

Sales Hotline 408-247-4444

Technical Support 408-247-4990   Fax 408-247-4448

Not responsible for typos / Price subject to change w/o notice / Price good thru 4/4/93

HUGE SAVINGS!

Super Software Sale!

Face Lift for Windows
Version 2.0

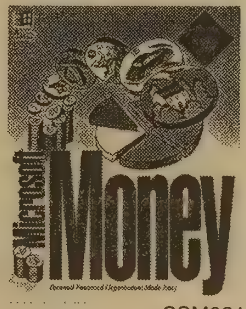
The Fast, Easy Way to Scale, Manage & Enhance Fonts Under Windows!

NEW!
FaceLift

$9.99

SSW861

Microsoft Money for Windows
Version 2.0


Microsoft Money

$14.69

SSM031

Expert Animation

Create Stunning Computer Animation!

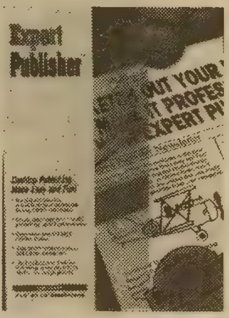
Expert Animator

$14.99

SSD02840

Expert Publisher

Desktop Publishing Made Easy & Fun!

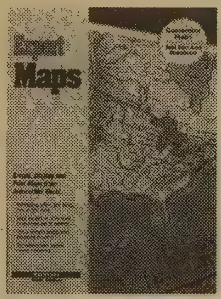

Expert Publisher

$14.99

SSD2832

Expert Maps

Create, Display & Print Maps from Around the World!


Expert Maps

$14.99

SSY2820

Expert Publishers 10 Best

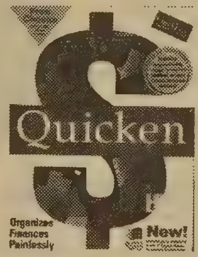
Create Greeting Cards, Newsletters, Banners, Forms, Brochures & Much More...

$19

SSD9520

Quicken for Windows
Version 2.0

VOTED BEST OF '92 PC Magazine


Quicken
Organizes Finances Painlessly
New!

$39

SSM022

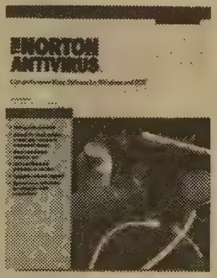
Star Trek for Windows
Version 1.0

The Screen Saver! From the Makers of AFTER DARK.

$39

SST1701

Norton AntiVirus
Version 2.1


NORTON ANTIVIRUS

SYMANTEC.

$39

SST213T

XTree for Windows

VOTED BEST OF '92 PC Magazine

XTreeWINDOWS

$49

SST246W

Dashboard for Windows

The Convenient Push-Button Utility Panel For Windows

HEWLETT PACKARD

Dashboard
THE FASTEST WAY TO WORK IN WINDOWS

$49

SST571

MS-Windows 3.1 by EPSON

EPSON

3.5" and 5.25" versions available!

MICROSOFT WINDOWS 3.1 UPGRADE

$59

SSW031T3

MS-Access
Database Management system for Windows

Limited To Stock On Hand!

Microsoft ACCESS

$99

SSH023

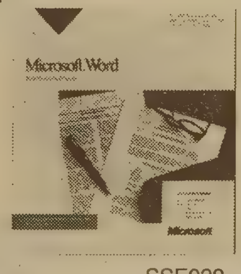
MS-Excel for Windows
Version 4.0

$299

SSG074

MS-Word for Windows

VOTED BEST OF '92 PC Magazine


Microsoft Word
Microsoft

$319

SSE039

Paradox for DOS
Version 4.0

VOTED BEST OF '92 PC Magazine

PARADOX
BORLAND

$499

SSH251

ACCESS
COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

STORE HOURS:

MON-FRI 9-8

SAT-SUN 10-5

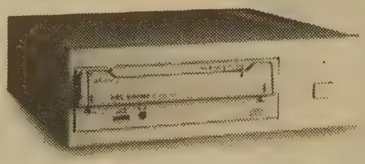
COMPLETE LINE OF NEC PRODUCTS

An Authorized NEC Reseller

Fastest Readers Available!

NEC

NEC Technologies, Inc



InterSect™ CDR-74 External CD-ROM

World's only CD-ROM Readers with MultiSpin.™

$669

- 280 millisecond access time
- 300KB data transfer w/64K cache memory
- MultiSpin™: for 300KB/sec transfer rate
- MPC Compliant for multimedia applications
- Play Audio CDs w/software & I/F Kits
- Two-year Limited Warranty

Internal............$569

READY 486 Computers

486DX
33MHz
$1999

- i486SX-25MHz w/4MB RAM exp to 64MB
- Large capacity 170MB hard drive
- NEC 14" SVGA .28mm monitor
- 96S/48R fax, 24SR modem w/Prodigy Kit
- DOS, Win, Desktop, WindowWorks & Quicken
- 5.25" & 3.5" floppy & NEC mouse included

486sx25 ....$1699

Get The Perfect Warranty On The Laser Printer That's A "Perfect 10"

Buy a **Silentwriter® 95** *by March 31, 1993, and receive. . . absolutely FREE*.*

NEC ON-SITE
3 YEAR
WARRANTY

$1149*

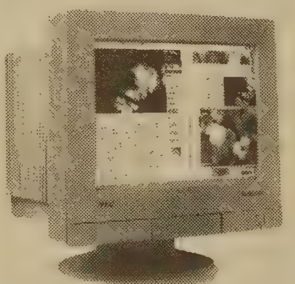
In-Store Price $1399

- 6 PPM, 2MB RAM exp. to 5MB
- 35 scalable Adobe fonts
- 14 bitmap & 8 scalable HP fonts
- HP LaserJet III w/PCL-5 emulation
- Auto Interface Monitoring for easy sharing

*Price reflects a $250 end-user mail-in rebate, some restrictions apply, valid thru Apr. 30, 1993

** Some restricitons apply. Silentwriter is a registered trademark of NEC Technologies, Inc.*

MultiSync® 4FG Color Monitor



Exclusive AccuColor Control for adjusting Colors!

- 15" flat square high contrast CRT
- .28mm trio dot pitch
- 1024x768 resolution non-interlaced
- 75MHz maximum video bandwidth

$749

3FGx	15". .28mm, 1024x768, N/I	$649
5FG	17". .28mm, 1280x1024, N/I	1299
6FG	21". .28mm, 1280x1024, N/I	2399

UltraLite® SL/25C

The **UltraLite® SL/25C** *has the #1 essential for a great color notebook.*

- i386SL processor w/25MHz
- 2MB RAM exp to 10MB
- Large capacity 80MB hard drive
- Brilliant 9.5" color VGA display
- 64KB cache for enhanced performance
- High-speed Enhanced Parallel Port (EPP)
- Small 9"x11.5" footprint weighing 7.5lbs.

$2499

Great Colors!

ACCESS COMPUTER TECHNOLOGIES

2225 EL CAMINO REAL SANTA CLARA, CA 95050

Not responsible for typos / Price subject to change w/o notice / Price good thru 3/7/93

Sales Hotline

408-247-4444

Technical Support 408-247-4990

Fax 408-247-4448

What Makes A Good BBS?

Advice For Sysops, And Potential Sysops

BY KATHLEEN CREIGHTON

I've spent the last year researching BBSes and writing BBS reviews for the Northern California edition of *MicroTimes* and elsewhere. Since I'm available on a Bay Area BBS (Bay List BBS, 510/339-1045, 2400 baud, 8-N-1, Julie McGrew, sysop), and have made my presence known on the Fidonet message area BBS ADS, it's not unusual for new sysops to ask me to take a look at their boards.

Unfortunately, the cost of long-distance calling, especially within California, prevents me from doing much calling outside of the Bay Area, so *MicroTimes* has invited me to write this feature and expand on what I think helps make an interesting BBS from a user standpoint. These opinions form the basis for my reviews.

My ideas about BBSes are not without controversy.

Running a BBS is a hobbyist activity and, like most hobbies, it demands a commitment of time and money. Sysops provide free entertainment for others without regard to thanks or acknowledgement for their efforts (although it certainly would be nice).

Some people feel that sysopry's implied dedication places sysops beyond criticism. While systems of which I'm very critical don't usually make it into my column, I think it's appropriate to say that some boards are better than others. Sysops who would like to reach a larger audience but find that they don't, might want some guidance.

SETUP ISSUES

I've never been a sysop, but observation tells me that bulletin board systems are as individual as the people who run them—except in the area of naming the BBS. There are quite enough "Midnight Darkstar Trek Cyber Virtual Dimension Connection" BBSes. Next to these boards, names like "Jazz Online," "The Classifieds," and "Recovery BBS" seem absolutely sublime. Something simple and to the point, which reflects the purpose of the BBS, is always welcome.

Some sysops are passionate about free expression of ideas, the use of handles, and having no restrictions of any kind on their boards, while others are just as passionate about imposing rules and limitations, and will fill up several entry screens telling the user what they are.

> A BBS DOESN'T USUALLY SPRING FORTH FULLY DEVELOPED—IT TAKES A WHILE TO GROW. AT THIS POINT IT'S RELIANT ON THE SKILLS OF THE SYSOP TO BRING IT TO FULL BLOOM.

The initial logon process is the user's introduction to the BBS. Some BBS software makes this tedious—any BBS which expedites this process is ahead of the game. Long questionnaires and queries about "mother's maiden name" are annoying at best, especially for BBS callers who are just looking around. Instructions regarding user verification, subscriptions, download time, or other particulars, should be brief, clear, and to the point.

Some sysops are using automatic call-back programs to verify the number from which the user is calling, and some sysops are more effective than others about explaining this feature and how to use it. Users making local calls can take the time to closely read and absorb poorly worded instructions, but users making toll calls are usually under the pressure of the clock and won't always take the time attempting to decode cryptic explanations.

One new sysop hobby is ANSI art, and many are now using high ASCII characters to draw screens. Not everyone shares the joys of ANSI. At 2400 baud (which is still the modem speed standard), ANSI drawings are slow. The ability to turn ANSI on or off should be user selectable, preferably as soon as possible, although some BBS software automatically detects ANSI and subjects users to an excruciating wait until ANSI can be turned off.

It doesn't take any time to proofread—or have someone else proofread—entry-screen text, or to ask others to read instructions to gauge their comprehension. The most consistent error is the incorrect use of "it's" for "its."

Bulletins and newsletters should be selectable, with a pointer, if necessary, to required bulletin reading. Download ratios and subscription information, if any, should be selectable and clearly explained. Special features and "doors" should also be clearly explained, along with caveats if, for example, game software takes a long time to load.

Some sysops, aware that their callers can be vexed by the new account process, use gentle humor to get through the logon. Other sysops use heavy-handed or shrill humor, and a few manage to be insulting to anyone over the age of twelve. If boards are as individual as their sysops, the tone of the login screens controls, to some extent, the type of users to whom the BBS will appeal. And while most logon processes ultimately end at a menu, one BBS inexplicably dumped me into a "jive" message area. It was not an auspicious beginning.

BBS callers are as much hobbyists as the folks who run them. Some are dedicated to downloading as much as possible, whether text files, shareware or freeware, GIFs, or—the newest entertainment—animation or sound card files. As many enjoy reading a selection of echo (Fidonet-type) message areas, and some enjoy participating in ongoing conversation. The "generic" BBS, one with some local message areas, echo message areas, and a few files, has been done over and over again, especially in urban areas.

While some sysops have jumped on the download bandwagon (and some have done quite well, carving out significant and sometimes lucrative niches for themselves), sysops running text-oriented boards have been slow to recognize the appeal of the special-interest BBS, beyond, perhaps, "adult-oriented" material. Is there a BBS in your area that caters to specific interests such as photography, scuba, travel, UFOs? A special-interest BBS can be built using a combination of local message areas, Fidonet or Fidonet-type echo message areas, Usenet newsgroups, and a selection of relevant and up-to-date files. I call two special-interest BBSes every day, and if there were more local BBSes which appealed to me personally, I'd surely call them, too.

A number of sysops will accommodate users' requests rather than try to be all things to all people by loading up on a large number of unrelated message areas and satisfying no one. One San Francisco BBS happens to carry almost every message area I need to do local and national BBS research, and the sysop graciously accommodated my request to carry the one additional message area I needed to save myself a toll call, thus configuring an individual special-interest BBS for me.

The exception to the specialized board is itself a sort of specialization—the mega-message area board. One BBS in the Bay Area carries over five hundred echo message areas from a number of different networks, but they all seem thoughtfully selected and the list of echo areas segues in a natural progression from one major topic to another. Two other mega-message boards in the Bay Area, each carrying over one thousand echo message areas, appear as different as night and day. One is organized alphabetically by network, with clear descriptions of the echoes' contents; the other is alphabetized across all of the networks, the echoes not as well labeled, tending to give the BBS an unintentionally chaotic appearance.

IF SPECIFIC TYPES OF INFORMATION OR PROGRAM FILES ARE PART OF THE BBS's SPECIALIZED AREA, KEEP THE FILES UP-TO-DATE BY ADDING NEW ONES REGULARLY.

Signing on with Fidonet or another Fidonet-type network will not necessarily enhance a BBS's appeal. There are now well over fifteen hundred Fidonet echos and over one hundred Fidonet-type echo networks in the US for Fidonet-compatible boards, as well as many for systems running software incompatible with Fidonet. Boards which can carry Usenet newsgroups have a theoretical possibility of another three thousand-plus topic areas. Many of these networks seem unfocused in content, but others are very specific as to subject or geographic area served. The time and effort spent researching the availability of specific topic areas will pay off for the sysop who wants to run a special-interest board.

If specific types of information or program files are part of the BBS's specialized area, keep the files up-to-date by adding new ones regularly. A board which touts its file area but has had nothing new added in the last two years says that the sysop has lost interest.

PROMOTING AND RUNNING A GOOD BOARD

The BBS is up, the message areas running smoothly, and friends have beta tested the result. Now it's time to think about letting others know this BBS is up and running.

Or is it? Time after time I've seen ads for new boards which are quiet as churches—and as often I've seen ads from sysops desperate for people to call. Encourage friends or associates to come by and help "salt" message areas. One of the advantages of adding well-selected echo message areas to local material is that it gives callers something new to read every day which in turn promotes their interest in calling back. A BBS doesn't usually spring forth fully developed—it takes a while to grow. At this point it's reliant on the skills of the sysop to bring it to full bloom.

Some sysops demand that a new user leave a comment to the sysop in order to be validated. Some claim this is for "security," or to keep the merely curious out of a highly specialized board, while others contend that it helps them to know the user's interests. The sysop who chooses this route might follow up with a personal, private message to the new user, to be read the next time the user signs on. It can also be helpful if other BBS users acknowledge the new user's presence, especially on a board which emphasizes discussion and social contact.

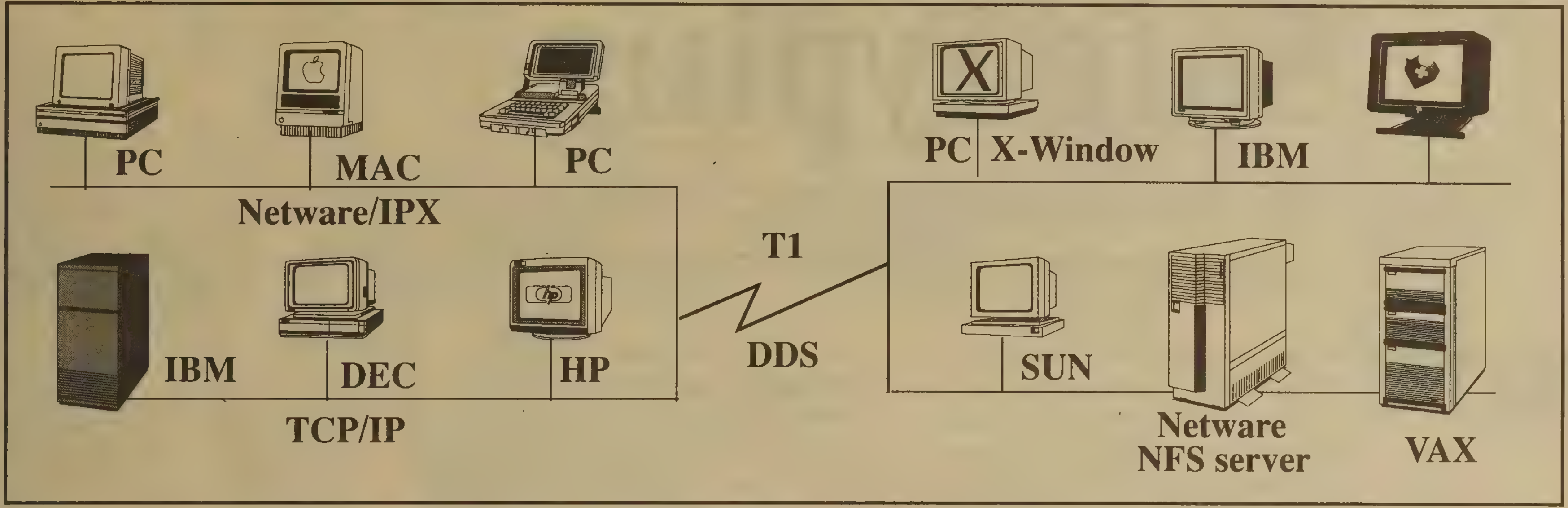
New sysops should know that only a very small percentage of BBS or online service callers participate by posting messages. The rest are content to read. Cliff Figallo, former director of The WELL, calls this the "postocracy," where the direction of discussion is shaped by a few and read by everyone else. Some sysops try to encourage posting by imposing a posting-to-download ratio, sometimes as high as 1:1. Other sysops confront the issue head-on by stating in the opening screens that the BBS is primarily for discussion and not a download emporium. Inveterate downloaders will go elsewhere.

At the same time, though, sysops and local or echo message area moderators might want to consider what they can do to stimulate discussion, instead of throwing their hands up in despair. Sysops interested in personal interaction will correspond with users privately in a way that lets users know that the sysop is interested in them.

Others might have more of a flair for provoking public discussion. San Diego sysop Bob Johnstone (California Self-Help Library, 714/952-2110, 2400 baud, 8-N-1), moderator of the Fidonet echo BBS ADS, indirectly inspired this article by offering his public opinions of the BBS ads he saw in the echo message area. I was drawn into the discussion, although at the time he wasn't even aware that someone from *MicroTimes* was reading

continued on page 214

NAC Knows NETWORKS!


PC
MAC
PC
Netware/IPX
IBM
DEC
HP
TCP/IP
T1
DDS
PC
X-Window
IBM
SUN
Netware NFS server
VAX

Novell NetWare

NetWare Special

Novell Gold Authorized Reseller

v3.11, 20 user....$1950

Netware NFS.... Call

Special Bundle Kits

v3.11, 20 user.... w/ 10 Ethernet Kits	$3350
v3.11, 10 user.... w/ 5 Ethernet Kits	$2295
v2.2, 5 user....... w/ 5 Ethernet Kits	$1349

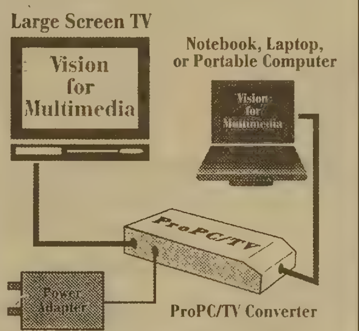
2-Node NetWare-Lite Kit

Kit: includes NICs, Cable, and Connectors $290

CHOICES

digital™
COMPAQ
NOVELL
Authorized Dealer
3Com
IBM Business Partner
SMC
WOLLONGONG
LANtastic™ ARTISOFT INC.
ALR
HUMMINGBIRD
EVEREX
DAVID SYSTEM
intel
FTP
SCO THE SANTA CRUZ OPERATION

Blame not your small CRT!
Enjoy your large TV screen!!
Run, play, or present your programs, games, or data with:
VGA to NTSC encoder box
Special........................... $379


Large Screen TV
Vision for Multimedia
Notebook, Laptop, or Portable Computer
Vision for Multimedia
ProPC/TV
Power Adapter
ProPC/TV Converter

Network Equipment

1000' cable	$200
AMP BNC Male (10 pack)...	$30
Terminator (thin)	$6
Terminator (thick)	$12
Barrel	$6
15' or 25' assembled cable..	$20
AMP Crimp Tool	$225
IBM T.R. Patch Cable 8'....	$25
Transceiver (10 BaseT)	$95
Transceiver (BNC)...............	$105
Transceiver(Vampire).........	$130
Transceiver Cable 5 meter..	$45
3COM 12-port 10Base T Multiconnect	$1550
Interlan 8-port Repeater/Thin	$1795
Asante 12-port Smart Hub.............	$850
David System 12-port Hub/10T....................	$585
10 Base T 8 port Hub...........	$315

SERVICES

- Network System Design
- App. Software Support
- Hardware Configuration
- System Training
- System Integration
- Telephone Support
- Network Cabling
- On-Site Maintenance
- Software Installation
- Custom Programming

SPARC Workstation

- 36 MHz Super SPARCstation
- 10.6 MFLOPS
- 32MB RAM
- 540MB Hard Disk
- GX Frame Buffer
- 3.5" Floppy Drive

- SPARCstation 10 Equivilant
- Multiple Processor Capability

Priced from
$14,250

*8M RAM, 200M HD, 20" Color Monitor
•SPARC is a trademark of SPARC International

Network Adapters

3Com Coax.................................	$160
3Com 10T....................................	$162
Intel 16 bit Ethernet, Coax..........	$145
WD 8 bit coax.............................	$148
WD 8 bit 10T...............................	$158
WD 16 bit coax............................	$175
WD 16 bit 10T.............................	$185
Asante Ethernet...........................	$235
Dayna Etherprint.........................	$415
Intel Netport................................	$525
LANtastic Arcnet Kit..................	$290
LANtastic Ether Kit....................	$390
Xircom Pocket Adapter...............	$340

TCP/IP - NFS
X-Window for PCs

TCP/IP Bundles

TCP/IP- DOS	$465
TCP/IP-Netware	$465
TCP/IP-MAC	$455
TCP/IP-XENIX	$695
TCP/IP-Unix 386	$550

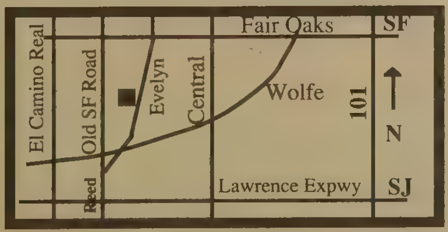
NFS Bundles

NFS for DOS	$495
NFS for Netware	$585
NFS for Mac	$725
NFS for Unix 386	$745

X-Window Bundles

X-window w/TCP/IP...	$425
X-window w/PC-NFS..	$960
X-window for Netware	$950
X-window w/TIGA video card	$1820

Price includes High Performance Ethernet Card & SW


Fair Oaks
SF
El Camino Real
Old SF Road
Evelyn
Central
Wolfe
101
N
Reed
Lawrence Expwy
SJ

*N*etwork *A*ssociates *C*orporation

(408) 733-2600 ext 333

FAX (408) 733-4268

720 E. Evelyn Ave., Sunnyvale, CA 94086-6526

Not responsible for typographic errors. Subject to stock on hand. Prices subject to change

Safe Typing

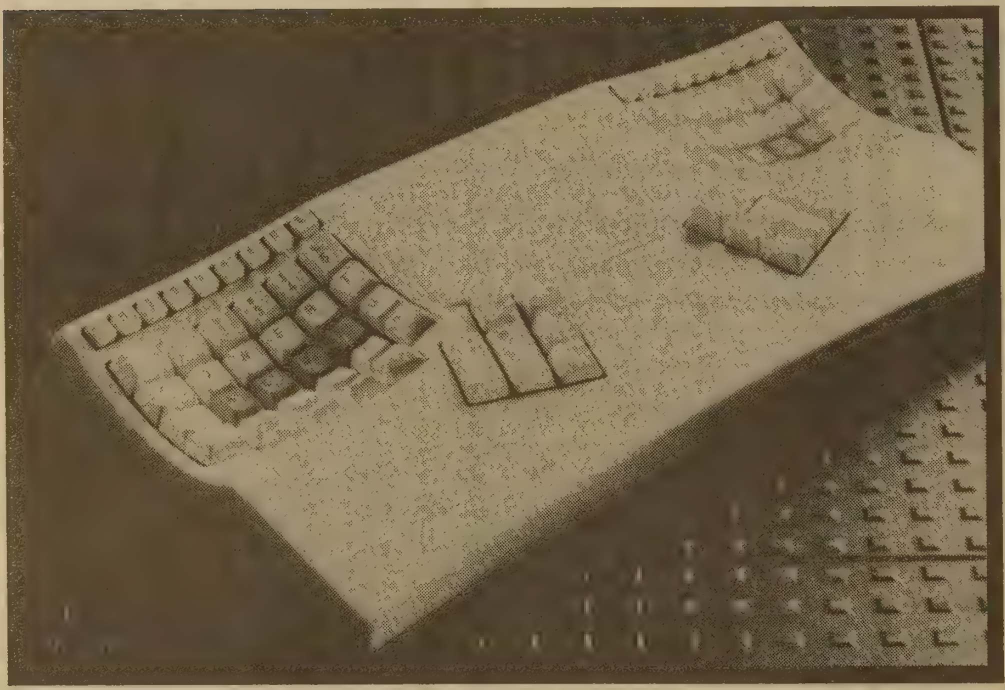
The Kinesis Ergonomic Keyboard Offers A Solution To Computer Injuries From The Keyboard

BY BIRRELL WALSH

What *is* that funny-looking keyboard?

It is the Kinesis Ergonomic Keyboard. It is intended to reduce stress for keyboard users by rearranging the design of the keyboard itself. The target market is the person who already has tendinitis or is at risk for it. Since the use is medical, the keyboard costs a *lot*: $690. That is the bad news. The good news is that it may be worth it. I cannot evaluate the keyboard as a medical professional, but as a user I must say I am impressed.

The keyboard separates the keys into two "wells." Your hands rest on supports at the bottom of the keyboard, and your fingers dangle naturally into the wells. The keys are in the traditional QWERTY layout. Function keys are arranged as chiclet keys along the tops of the wells.



There are two islands of six keys each under your thumbs. The thumbs, which only use the spacebar on a traditional keyboard, are here used for space, enter, backspace, delete, control, alt, page up, page down, end, and home. This organization to use the thumbs more than the little fingers is extremely appealing.

I made notes while I learned to use the keyboard. This is what adapting to the Kinesis keyboard is like for a person accustomed to the traditional keyboard:

"Unlike the experience of working on a normal keyboard, when you use this one the hands are naturally spaced far apart. In fact the hands come almost straight forward from the shoulders, and then have their weight supported by the keyboard itself. This allows the shoulders to swing to an open position. You can breathe while typing. Because the weight of the arms is supported by the keyboard, the shoulders can relax. So instead of the hunched forward, round-shouldered position we all associate with our typing, this keyboard seems to enforce and support an erect and relaxed upper torso. The lower back doesn't have to get into some weird position to compensate for the weird position the upper back is in. The whole spine seems to line up.

"I do find that certain keys frequently get hit together. One such pair is M and N. Another is U and I. The keys which must be reached by having the index finger extend are the worst. It has been about two days that I have been using the keyboard. I still like the thumb keys a lot, I am still hitting the side-by-side keys a lot, and the postural observations are holding up. Speed is beginning to pick up. I can feel every muscle that I use—I do not know if it is just the unusualness of using the new forms after 35 years of using the old.

"One strange thing is trying to learn the positions for the multiply shifted keys like <CTL> <ALT> -T or some such. You must reach into the wells for the letter keys and out to the islands for the <SHIFT>, <ALT>, and <CTL>. Some of the finger-straddles seem really bizarre—of course they also seem bizarre on the ordinary keyboard."

continued on page 216

Large corporations might find it a good investment. One worker who goes home with a Workman's Compensation claim costs a lot more than $700.

RESOURCES:

Ergonomic Keyboard, $690
Kinesis Corp.
915 118th Ave. SE
Bellevue, WA 98005-3855
(206)455-9220

Copyright © 1993 by Birrell Walsh. All rights reserved. *Birrell Walsh works at KQED in San Francisco and writes on a variety of PC-related subjects.*

Apple® Macintosh®
And
E·n·h·a·n·c·e·m·e·n·t·s

Apple® Macintosh® PowerBook Duo™ Dock

- PowerLatch docking technology for easy, automatic, one-step docking
- Internal 1.4 MB Apple SuperDrive
- Built-in video support for 256 colors, expandable to 32,000 colors
- Supports most Apple displays, including the Macintosh 16" Color Display, as well as some VGA and SVGA displays
- Two NuBus expansion slots
- 10 built-in ports, including SCSI port for up to six peripherals, such as an external hard disk or CD-ROM drive
- Security key for locking PowerBook Duo and slot for a security cable

#1738432

Authorized Reseller

$1079

Apple® Macintosh® Mini Duo™ Dock

- Small size and weight for easy portability
- PowerLatch docking technology
- Built-in video support for 256 colors
- Supports most Apple displays, including the Macintosh 16" Color Display, as well as some VGA and SVGA displays
- 9 built-in ports, including SCSI port
- Slot for a security cable
- Port for connecting external floppy disk drive

#1756779

Authorized Reseller

$589

Apple® Macintosh® Powerbook™ 145 4/40

The Apple® Macintosh® PowerBook™ 145 computer is designed for those who want solid Macintosh performance and flexibility in a convenient, take-it-wherever-you-work notebook computer. Although it fits easily in your briefcase, this innovative notebook computer offers the full power and ease of Macintosh computing.

#1720866

Authorized Reseller

$1899

Apple® Macintosh® Powerbook™ 160 4/40

The Apple® Macintosh® PowerBook™ 160 computer gives you flexibility and power in an incredibly compact notebook computer. Its 16-level gray-scale display and video-out capabilities make it a good choice for anyone who works outside the office and needs a notebook computer for customer and client presentations. The PowerBook 160 comes with 4 megabytes of RAM, expandable to 14MB. So it can run virtually all the applications you want. Comes with a 80MB hard disk drive. Plus, the PowerBook 160 has built-in support for a variety of monochrome and color displays. Limited to supply on hand.

#1738270

Authorized Reseller

$2199

Apple® Macintosh® Powerbook™ 180 4/80

The Apple® Macintosh® PowerBook™ 180 computer is the most powerful member of the PowerBook family of notebook computers. It combines incredible speed with high performance and the best screen quality available today, to give you a notebook that's flexible, functional, portable, and powerful. The PowerBook 180 has everything you need for impressive client presentations. Video-out capabilities let you work on a variety of external displays, both monochrome and color. It comes standard with 4 megabytes of RAM and a built-in modem, and runs applications up to 50 percent faster than the PowerBook 140.

#1738306

Authorized Reseller

$3999

Apple® Macintosh® PowerBook Duo™ 210 4/80

68030 35MHz CPU
80MB Hard Drive
4MB RAM Expandable to 12MB
2 Expansion Slots • Serial Port • Docking Connector
Power Adapter Port • Modem Port
9" Backlit Supertwist • Display
Nickel-hydride Battery • Built-In Appletalk
#1738339

Authorized Reseller

$1929

Apple® Macintosh® PowerBook Duo™ 230 4/80

68030 33MHz CPU
80MB Hard Drive
4MB of RAM Expandable to 24MB
2 Expansion Slots: 1 for Modem/ 1 for RAM
Serial Port • Docking connector • Modem port
Power adapter Port • 9" Backlit Supertwist Display
Nickel-Hydride Battery • Built-in Appletalk
#1738340

Authorized Reseller

$2399

POWER PORT BRONZE

FAX MODEM FOR POWERBOOK™

Global Village Communication

PowerPort/Bronze adds affordable send and receive fax and data modem services to your Macintosh Powerbook. PowerPort/Bronze lets send faxes at 9600 bps and receive faxes at 4800 bps. PowerPort/Bronze is fully internal and fully portable. It fits completely inside the modem slot of any PowerBook computer and doesn't require a separate battery or power supply.

#1735635

$199.99

PLI SUPER FLOPPY MAC

1.44MB/800K/400K Floppy
External Floppy for MAC's
#1661293

$349

MICRONET 124MB SCSI EXTENAL

External hard drive for Macintosh • 16ms
CPK-120X
#1751659

$549

FARALLON APPLETALK CONNECTOR

Apple MAC phone connector
DIN 8
PN/350
#1743979

$19.99

ASANTÉ MC3NB 64K CASHE

Ether External For Apple
Macintoch II's • Thick and Thin
10T • 64K Cache
As 09-00301-02

#1717538

$249

MAGNAVOX 14" MAC COLOR DISPLAY

640 X 480 • 29 Dot Pitch
WITH CABLES
For MAC II S. C. #1748516

$399

datadesk 101 Key MAC KEYBOARD

For Mac SE, SE30, Mac II
#1596481

$129.99

KOALA MAC VISION GREY

Scale Video Digitizer
Serial Device
256 Grey Scale
System 7 Savvy
#1737316

$249

FOTOMAN™ DIGITIAL CAMERA FOR COMPUTERS

From Camera To Computer Instantly!

LOGITECH For the Macintosh.

FotoMan™ lets you add full 256 gray scale images to your documents with just the press of a button. There's no film, no developing and no waiting! Small and lightweight. Takes up to 32 pictures at a time from distances of three feet to infinity. Preview, select and then edit your photos. Enhance photos with FotoTouch™ Save images in TIFF, EPS, PCX and BMP formats. Comfortable for right or left-handed use. Built-in flash for great indoor pictures.

#1713028

$599.99

LOGITECH MOUSEMAN MAC

• Advanced Design for [illegible] comfort • control panel software • Easily program buttons to streamline applications • 400 DPI HARDWARE adjustable to 200 [illegible] Software #1605451

$75.99

Intuit Quicken Version 3.0 for MAC

HOME BUDGETING & CHECKING SOFTWARE

End Financial Hassles with the World's Best Selling Financial Software.

#1619780
MAC

$39.95

DISTANT SUNS For Macintosh

Outperforming a Million Dollar Planetarium on your Macintosh! Distant Suns... a Virtual Reality Desktop Planetarium and "Times Machine" allows you to view night skies in glorious color with magnificent 3-D resolution.

#1721960

$54.95

EDMARK KID DESK

Kid Desk gives kids creative control over their computing environment. It protects hard disk data from a child's curiosity while enabling even young children to launch their own software programs and learn real-life skills. It comes with talking clock, working calendar and calculator, message machine, nameplate, six personalized desktops, and screen savers.

MAC
#1742392

$25.95

Microsoft Excel® 4.0 For Mac

MS Excel leads the Macintosh spreadsheet market in case of use, design innovation, and integration. New features of 4.0 include: Drag & Drop • Customizable Toolbars Auto Fill/Auto Fit Auto Select • Shortcut Menus View manager and a lot more.

MAC
#1705500

$288

CLARIS ClarisWorks

New ClarisWorks™ has all the power and more, with complete word processing, graphics, spreadsheet, charting, database, and communications capabilities all in one seamlessly integrated application.

#1643303

$219

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

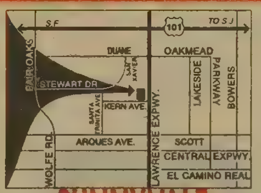
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

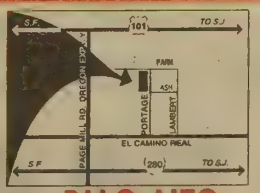
VISA AND MASTERCARD

CORPORATE P.O. FAX #



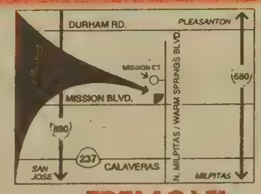
SUNNYVALE

1177 Kern Ave.
(408) 733-1770
(408)735-6800



PALO ALTO

340 Portage Ave.
(415) 496-6000
(415) 496-6060



FREMONT

440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

486DLC 33MHz

MINI TOWER SYSTEM

CYRIX 486DLC CPU

80486DLC 33MHz CPU
1MB RAM Expandable to 32MB
2 Hard/2 Floppy Controller
3.5" 1.44MB Floppy Drive
101-Key Keyboard
Clock/Calendar
Case / Power Supply

#1743603

$449

386SX 25MHz

14" COLOR VGA SYSTEM

80386SX 25MHz CPU
3.5" 1.44MB Floppy Disk Drive
1MB RAM Expandable to 16MB
40MB Hard Drive
14" Color VGA Display
Clock/Calendar
101- Key Keyboard
MS DOS 4.01
800 X 600 VGA CARD
MS Windows • #1644496

$699

486SX 25MHz

80MB SVGA SYSTEM

80486SX 25MHz CPU
1MB Expandable to 32MB
3.5" 1.44MB Floppy Drive
2 Hard/2 Floppy Controller
80MB Hard Drive
1024 X 768 SVGA Adapter Card
101-Key Keyboard • Clock/Calendar
MS DOS 5.0
MONITOR SOLD SEPARATELY
#1737866

$729

486DX-2 50MHz

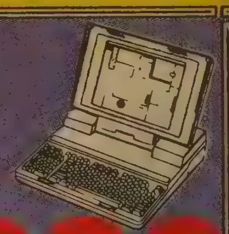
170MB SVGA SYSTEM

80486DX2 50MHz CPU
1MB RAM upgradable to 32MB
5.25" 1.2MB Floppy Drive
170MB Hard Drive • 64K Cache
101-Key Keyboard • Clock/Calendar
MS DOS
Super VGA 1024 X 768 Card
#1767016

$1199

386SX-20MHz

80MB NOTEBOOK



80386SX 25MHz
80MB Hard Drive
3.5" 1.44MB Floppy Disk Drive
2MB RAM
Serial/Parallel Ports
VGA Output
2.5Hrs Battery
While supplies last • #1752753

$1099

WYSE

486SLC 25MHz

80MB NOTEBOOK

80486SLC 25MHz • 80MB Hard Drive
3.5" 1.44MB Floppy Disk Drive
4MB RAM • Serial/Parallel Ports
VGA Output • MS DOS 5.0 • 5.0 LBS.
#1737372

$1499

MOTHERBOARDS

386SX-25MHz	#1634334	$99.95
386SX-40MHz	#1757943	$149.95
386DX-40MHz	#1735200	$219.95

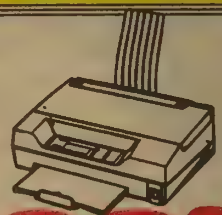
LOCAL BUS VESA

486DLC-33MHz	#1754962	$399.95
486DX-50MHz	#1757954	$799.95
486DX2-66MHz	#1754973	$899.95

EPSON *ActionPrinter* 2250

9 PIN IMPACT

DOT MATRIX PRINTER



50 Sheet Paper Cassette Tray
240 CPS Draft, 48 CPS NLQ
Quiet • 2 Year Warranty
#1729120

$138.95

Panasonic
Office Automation

KX-P4410

LASER PRINTER

5 Pages Per minute • 300 DPI
512K RAM Expandable to 4.5MB
Bitmap Fonts • 200 Sheet Paper Tray
Multi-purpose Cassette
#1659047

$628

Charlie Chip Says:
"Your Best Computer Buys Are Always At...

Fry's ELECTRONICS"

DISKETTE CORNER

DC2120 120MB DATA CARTRIDGE

Unformatted • 1/4" Tape • Dual Belted
3M 2120 Compatible
Works with Summit 120MB Back-up
& Colorado DJ10 Back-up
Lifetime Warranty
#1708514

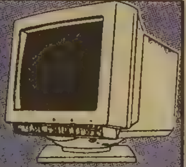
$\$16^{95}$

DC600A 60MB DATA CARTRIDGE

Unformatted • 1/4" Tape
Dual Belted • **Lifetime Warranty**
#1623684

$\$16^{95}$

1024 X 768 NON-INTERLACED 14" SUPER VGA MONITOR



024 X 768 • .28 Dot Pitch
Non-Interlaced • One year Warranty
#1657506

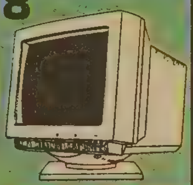
$\$329^{95}$

1280 X 1024 24-BIT SUPER VGA CARD

16 Million Color Capable
1280 x 1024 Max Resolution
Windows Accelerator VESA 72Hz
#1750485

$\$99^{95}$

1024 X 768 14" SUPER VGA MONITOR



1024 X 768 • .39 Dot Pitch
Interlaced • One year Warranty
#1643705

$\$239^{95}$

SONY MULTIMEDIA DESKTOP LIBRARY CD-ROM SYSTEM

SONY
Desktop Library

Multimedia CD-ROM Starter Kit
- Half-height internal Sony CD-ROM drive
- Includes the following CD-ROM titles:
  - GEO Works CD-ROM Manager and Tempra Access
  - New Grolier Multimedia Encyclopedia
  - Great Wonders of the World, Volume 1

Also Includes:
interface
and all cables
MODEL
CDU-31A-LL/N
#1747054

MPC
Multimedia PC

$\$429^{99}$

FREE FREE FREE Stock Quoter on your PC

or the first time the TeleText Decoder card lets you use our personal computer to receive news, sports, stock, affic and other important news information through normal ommercial, cable or satellite TV signals. Without the need nd expense of modems, telephone lines or service fees, eleText offers PC users the ability to view, capture, store nd print TeleText information pages easily and quickly.
1742325

NO MODEM

$\$179$

THE COMPLETE OFFICE SOLUTION Full Page Scanner 9600B Fax/2400B Modem

- 256 Greyscale 300 dpi Full Page Scanner
- 2400 Baud Modem/9600 Baud Fax
- Rapid Fax: Windows Compatible Fax Software

#1755941

TheComplete PC

$\$549^{99}$

ACECAT PC GRAPHICS TABLET & MOUSE EMULATOR

1000 Lines Per Inch
5" X 5" Active Area. Includes Stylus-Pen and Comprehensive Utilities Diskette Including Custom Drivers for Mouse, Windows, Control Panel and ADI.
#1659900

$\$109^{99}$

9600 Baud Fax 2400 Baud Pocket Modem For Macintosh

Auto power down for extended battery life
RS232 Interface w/RJ11 Jack
(V Battery/AC Power adaptor included
Weight without Battery 3.4oz
#1732894

$\$99^{99}$

firstMOUSE

OGITECH **FIRST IN CONVENIENCE, FIRST IN QUALITY AND FIRST IN ECONOMY**

hree programmable buttons offer you maximum exibility. Includes Mouse Software for extra onvenience Guaranteed to work with all your pplications
1604667

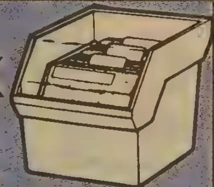
$\$39^{99}$

105MB IDE HARD DRIVE

19 msec Access • IDE Hard Drive
#1733574

$\$199$

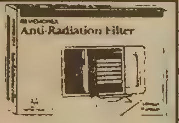
3.5" DISK FILE



Holds 50 Diskettes
by Inland # 1666988

$\$3^{99}$

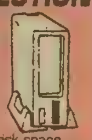
MEMOREX COMPUTER SUPPLIES UNIVERSAL RADIATION FILTERS



For monitors up to 15" Diagonal
99% Glare Reduction
98% Very Low Frequency & Extremely Low Frequency
E-Field Radiation Protection
#1672921

$\$49^{95}$

SPACE SAVING SOLUTION UNIVERSAL SYSTEM STAND



Vertical CPU stand frees up valuable desk space.
Adjustable stand holds units from 4.5" to 6.25"
#1619403

$\$5^{99}$

MINI TOWER COMUTER CASE WITH 200 WATTS OF POWER

#1742428

$\$59^{95}$

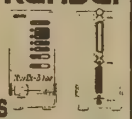
DANDY 3400 SCSI FLOPPY/ HARD SCSI CONTROLLER

Controller for IBM/COMP.
Future Domain chip set
#1700538

$\$69^{95}$

PARALLEL PRINTER BUFFER

kansai



EXPANDABLE TO 8MB USING 1 X 8 SIMM MODULES

27K Per Second Input
15K Per Second Thru-put
#1711462

$\$144^{96}$

FULL METAL JACKET 6 OUTLET 3 PHASE FULL SURGE PROTECTOR

Clamping Response
Time <1 Nanosecond
Energy Dissapation
50/150 Joules
#1695713

$\$7^{96}$

PERIPHERAL VERSATILITY DB25 2 POSITION SWITCH BOX

Access 2 computers to 1 printer or 2 printers to 1 computers
Serial/Parallel DB25-02 #1432891

$\$6^{99}$

HOME OF FAST, FRIENDLY,
COURTEOUS SERVICE

Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For
Typographical Errors

Prices good thru
March 29, 1993

STORE HOURS
MON - FRI
8AM - 9PM
SATURDAY
9AM - 8PM
SUNDAY
9AM - 7PM

SUNNYVALE 1177 Kern Ave. (408) 733-1770
CORPORATE P.O. FAX # (408)735-6800
PALO ALTO 340 Portage Ave. (415) 496-6000
CORPORATE P.O. FAX # (415) 496-6060
FREMONT 440 Mission Ct. (510) 770-FRYS(3797)
CORPORATE P.O. FAX # (510) 770-3700

VISA
MasterCard
VISA and MasterCard Accepted

MORE COMPUTER BUYS FROM FRY'S!

386SX-25MHz
MINI TOWER SYSTEM

80386SX 25MHz CPU
2 Hard /2 Floppy Disk Controller
1MB RAM Expandable to 16MB
3.5" 1.44MB Floppy Drive • Keyboard
Clock/Calendar • Case / Power Supply
#1659210

$299

486DX2-66MHz
MINI TOWER SYSTEM
64K CACHE
EXPANDABLE TO 256K

$999

80486DX2 66MHz CPU • 1MB RAM Expandable to 32MB
IDE 2 Hard/2 Floppy Controller • 3.5" 1.44MB Floppy Drive
101-Key Keyboard • Clock/Calendar • Case • Power Supply • 3M Cleaning kit
#1743636

TOSHIBA
T1800
20MHz 386SX

80386SX 20MHz • 60MB Hard Drive
3.5" 1.44MB Floppy Disk Drive
2MB RAM • Serial/Parallel VGA
Power Management Capabilites #1722466

$1199

Avanti
486SL
25MHz
80MB NOTEBOOK

25MHz 486SL CPU • 2MB RAM
80MB Hard Disk Drive • 1.44MB Floppy Drive
Serial/Parallel VGA
Unique Pivoting Screen Saves Space #1766820

$1799

LEADING EDGE
386SL
25MHz
60MB NOTEBOOK

60MB Hard Drive • 2MB RAM • 32K Cache
3.5" 1.44MB Floppy Drive • VGA Output • Mouse
Serial/Parallel • MS DOS 5.0
MS Windows • Window Works #1757666

WHILE THEY LAST!!!

$1299

TOSHIBA
T1850
SX/25MHz
120MB NOTEBOOK

SX-25MHz • 120MB Hard Drive
3.5" 1.44MB Floppy Disk Drive
VGA Output • 4MB RAM
Serial/Parallel VGA
MS DOS 5.0 • Mouse Port #1748837

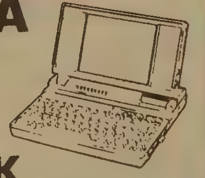
$1899

TOSHIBA
T1850C SX/25C
120MB
COLOR
NOTEBOOK

SX-25MHz • 120MB Hard Drive
3.5" 1.44MB Floppy Disk Drive
4MB RAM • Serial/Parallel
VGA Color Display • Passive
MS DOS 5.0 • Mouse Port #1748848

$2799

TOSHIBA
T3300SL
25MHz
386SL
NOTEBOOK



80386-SL • 25MHz • 120MB HARD DRIVE
3.5" 1.44MB Floppy Disk Drive • 2MB RAM
Serial/Parallel • VGA Output • PS/2 Port
Power Management Capabilites #1707409

* After $150 factory rebate. In-store price $2149.
Offer ends March 31,1993.

$1999*

WYSE
486SLC
25MHz
120MB
NOTEBOOK

486SLC 25MHz • 120MB Hard Drive
3.5" 1.44MB Floppy Disk Drive • 4MB RAM
Serial/Parallel Ports • VGA Output • MS DOS 5.0 • MS Windows #1737408

$1699

5.25" DS/HD FORMATTED DISKETTES

With Labels, Tyvek Sleeves And Write Tabs

LIFETIME WARRANTY

44¢ EACH
#1612428

Sold in packages of 25 only for $11

PACIFIC
DATA PRODUCTS

4MB MEMORY

For LaserJet 4, IIIsi, PaintJet XL 300 and DesignJet Plotter
MS400 #1738225

$199.99

IDE CACHE CONTROLLER
512K Cache

Expandable to 8MB
#1716995

$149.95

SRW

MICRO TEN PACK

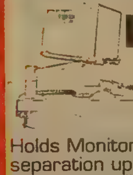
Holds 10
3.5" Diskettes
Easy-view Design

$1.89

#1449477

PLENTIFUL POSITIONAL POTENTIALITY!

MONITOR ARM



Holds Monitors with a 12" x 12" separation up to 40 lbs. Built-in chrome handle extends to hold 9 1/4" wide keyboard.
Made of platinum colored steel
8 lbs

MicroComputer Accessories, Inc

$39.99

MODEL
6150
#1544532

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

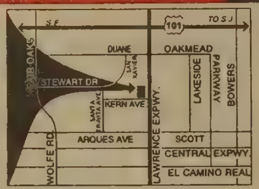
Prices good thru March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

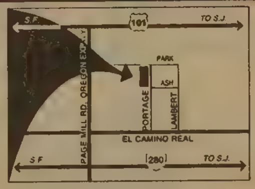
VISA AND MASTERCARD

CORPORATE P.O. FAX # (408)735-6800



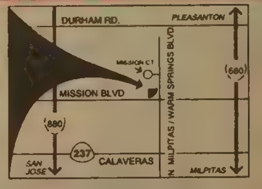
S.F.
101
TO S.J.
DUANE
OAKMEAD
SAN XAVIER
STEWART DR
KERN AVE
SANTA TRINITA AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770



S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
OREGON EXPWY
PAGE MILL RD.
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



DURHAM RD.
PLEASANTON
MISSION CT
MISSION BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS
N. MILPITAS / WARM SPRINGS BLVD

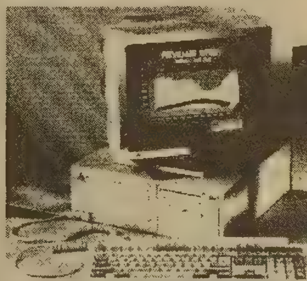
FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

LEADING EDGE

LEADING EDGE

LEADING EDGE

486SX 33MHz 107MB SYSTEM

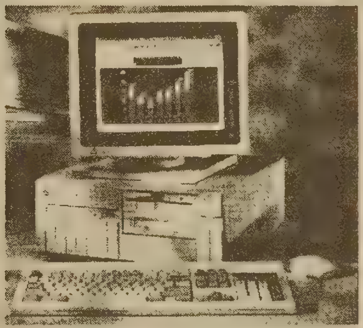


80486SX 33MHz CPU • 107MB Hard Drive
2MB of RAM • 64K Cache • 5.25" 1.2MB & 3.5" 1.44MB Floppy Drives
101-Key Keyboard • 1024 x 768 SVGA Adapter
1 Parallel/2 Serial Ports • MS DOS 5.0 • MS Windows • Window Works
Monitor not included
#1748284

ONE YEAR ON-SITE WARRANTY!

$1199

486DX-50MHz 213MB SVGA COMPUTER



80486 50MHz DX2 CPU
4MB of RAM Expandable to 32MB
5.25" 1.2MB &
3.5" 1.44MB Floppy Drive
101-Key Keyboard & Mouse
HR Video Adapter with 512K.
2/Serial 1/Parallel 1/Mouse Port
Software Included: Microsoft DOS 5.0
Microsoft Windows • Microsoft Windows
Works Wordprocessor • Spreadsheet •
Data Base Virus Protection Software •
Monitor Not
Included
#1694055

ONE YEAR ON-SITE WARRANTY!

$1888

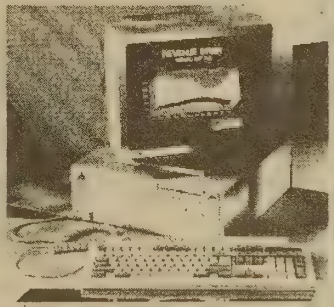
486DX 33MHz 213MB SYSTEM

80486DX 33MHz CPU
4MB of RAM Expandable to 32MB
5.25" 1.2MB & 3.5" 1.44MB Floppy Drive
101-Key Keyboard • HR Video Card w/512K.
2/Serial 1/Parallel 1/Mouse Port • Mouse
Software Included: MS DOS 5.0 • MS Windows MS Windows Works
Wordprocessor Spreadsheet • Data Base
Virus Protection Monitor Not Included #1694066

ONE YEAR ON-SITE WARRANTY!

$1799

486DX2-66MHz 213MB SVGA COMPUTER WITH 64K CACHE



80486DX2 66MHz CPU
4MB of RAM Expandable to 32MB
Mouse • 5.25" 1.2MB & 3.5" 1.44MB Floppy Drive • 101 Key Keyboard
HR Video Adapter with 512K. • 2/Serial 1/Parallel 1/Mouse Port
Software Included: Microsoft DOS 5.0 • Microsoft Windows
Microsoft Windows Works Wordprocessor • Spreadsheet • Data Base
Virus Protection Software • Monitor Not Included
#1712728

ONE YEAR ON-SITE WARRANTY!

$2399

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

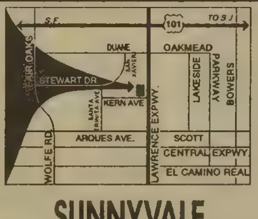
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

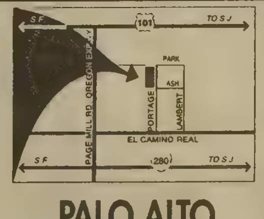
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD

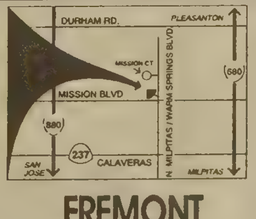
CORPORATE P.O. FAX #


S.F.
101
TO S J
FAIR OAKS
DUANE
SAN ZAVIER
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800


S.F.
101
TO S J
OREGON EXPWY
PARK
ASH
PAGE MILL RD.
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

SUPER SOFTWARE DEALS AT FRY'S

Microsoft Windows 3.1 Upgrade

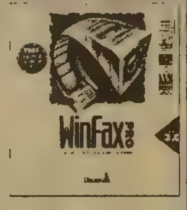
All Windows (2.X or higher) users can upgrade to Windows 3.1 in our stores by providing proof of ownership. (Program Disk or Title Page of Manual)

$\$44^{69}$

IBM
#1672563

WINFAX PRO

The Fax Software for Windows



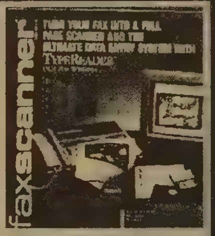
With WINFAX PRO you can send a fax from any Windows 3.0 application with just a few clicks of a mouse. Incoming faxes are even easier while you continue working, WINFAX PRO receives them in the background with no interruption.

$\$89^{95}$

DELRINA
TECHNOLOGY INC

IBM
#1611737

FAXSCANNER TYPEREADER BUNDLE



Turn your fax into a full page scanner and the ultimate data entry system with Typereader OCR for Windows.

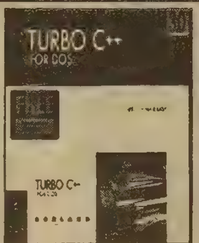
IBM
#1764459

SVA SOFTWARE, INC.

$209

TURBO C++

3.0 FOR DOS



TURBO C++ IS TWO COMPILERS IN ONE: C++ and ANSI C.

C++ is the language of choice for systems and applications development. TURBO C++ uses object-oriented programming to write better applications and increase your productivity.

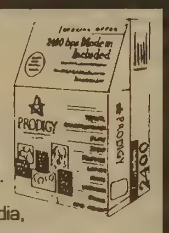
It contains 100% ANSI Compatible C Compiler.

$\$74^{95}$

IBM
#1671953

BORLAND

START-UP KIT FOR IBM



The PRODIGY® service gives you the latest news sports scores and stock quotes before the morning paper.

Plan your vacation and even book your own flights. Shop, bank and much more.

New features are added all the time, like the new 21-volume on-line encyclopedia, updated quarterly!

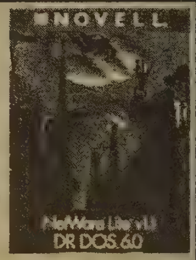
PRODIGY®
Interactive Personal Service

$\$24^{99}$

IBM
#1454925

NetWare Lite™

v1.1 with Windows Utilities



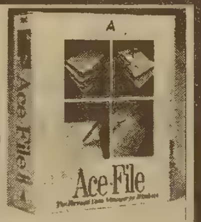
NetWare Lite is peer-to-peer networking software that allows the user to connect up to 25 PCs. It is easy to use and offers both DOS and network-level security with passwords and user priviledges.

$\$99^{95}$

IBM
#1764057

NOVELL

AceFile 2.0 for Windows



AceFile 2.0 for Windows, the personal data manager, lets you organize and analyze all of your information quickly and easily, without programming. AceFile is dBASE compatible and network-ready.

ACE SOFTWARE

$\$99^{95}$

IBM
#1623400

Lotus Organizer

Lotus Organizer is the most powerful organizer that put you firmly in control of your time. It comes with six tabbed notebook selections- Calendar, To-Do, Planner, Address, Notepad and Anniversary. It helps you organize your schedule, prioritize tasks, control clients and get more done.

Lotus

$\$109^{95}$

IBM
#1721328

COMANCHE:

MAXIMUM OVERKILL

Comanche unleashes unprecedented speed, fluid cinematic action never before experienced in the world of personal computer. Features: Smoothest, richest graphics ever seen in a real-time simulator. Real-time fly-bys through actual terrain data. Multiple channel, digital sound. Required 386SX or better with VGA and a hard disk.

$\$44^{95}$

IBM
#1750887

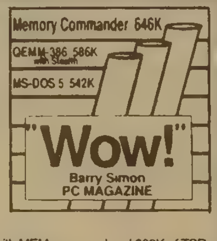
Microsoft Video for Windows

Microsoft Video for Windows opens your videos to a world of digital possibilities on your PC. Capture and incorporate video into presentations, include it in PC-based tutorials, or distribute it on CD-ROM. You can even get started right away—without a camcorder—by using the Video Clip Library of more than 200 video samples.

$\$134^{95}$

IBM
#1748413

Free Memory



Every independent test proves Memory Commander delivers the most available DOS memory of any memory manager!

with Memory Commander

PC MAGAZINE'S test of Available DOS Memory with MEM command and 298K of TSRs & drivers loaded.

$\$49^{95}$

IBM
#1584383

DISTANT SUNS FOR WINDOWS

Outperforming a Million Dollar Planetarium on your PC! Distant Suns Windows... a Virtual Reality Desktop Planetarium and "Times Machine" allows you to view night skies in glorious color with magnificent 3-D resolution.

$\$44^{95}$

IBM
#1705991

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Prices good through March 29, 1993

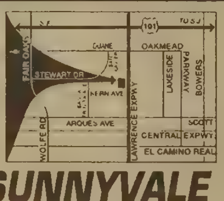
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

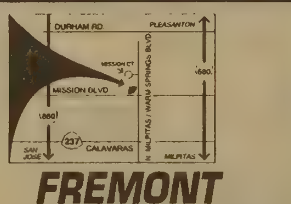
MasterCard
VISA

VISA AND MASTERCARD ACCEPTED

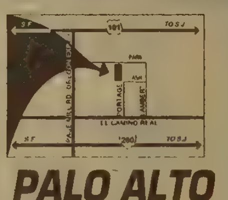
CORPORATE P.O. FAX #



SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

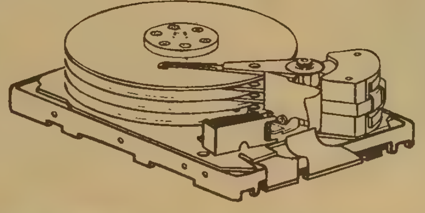


PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

CONNER PERIPHERALS

170MB 3.5" IDE HARD DRIVE

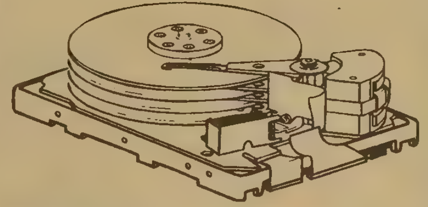
17ms Average Access • 32K Buffer
1" HT. • Low Power Consumption
CP30170E #1656815



$259

CONNER SOF-STOR 170MB HARD DRIVE WITH SOFTWARE BUNDLE

HARD DRIVE PRE-FORMATTED WITH MS-DOS 5.0
ALL SOFTWARE INSTALLED • MS -WIN 3.1
WINDOW WORKS • MS PUBLISHER
ANTI-VIRUS • SMART CO-EXIST IDE CONTROLLER
CONTROLS UP TO 2 IDE HARD DRIVES AND
2 FLOPPIES • CONTROLS 2.88MB, 1.44MB OR
720K FLOPPIES #1753075

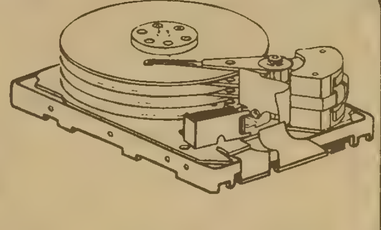


$399

Maxtor

7120A

120MB IDE HARD DRIVE

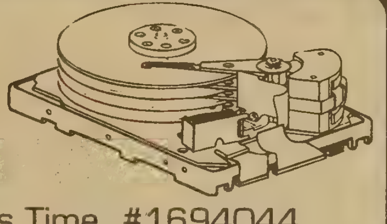


3.5" X 1" HT
17MS Access Time
#1611508

$229

7213A

213MB IDE HARD DRIVE

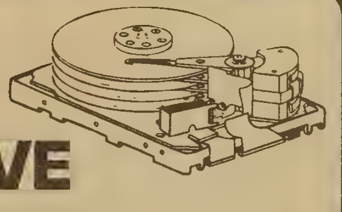


3.5" X 1" HT • 15MS Access Time #1694044

$325

LXT-340A

340MB 3.5" IDE HARD DRIVE

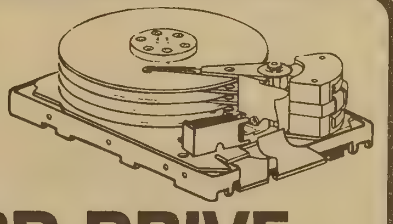


3.5" HT • 15MS Access Time
#1625653

$588

MXT-7245A

245MB 3.5" IDE HARD DRIVE



3.5" • 1" HEIGHT
15MS Access
#1759934

$389

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

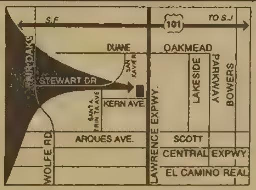
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

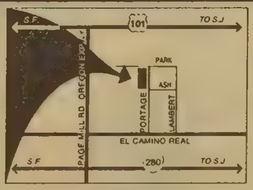
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND
MASTERCARD

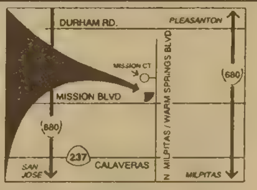
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J
FAIR OAKS
DUANE
OAKMEAD
STEWART DR
SANTA TRINITA AVE
SAN XAVIER
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J
PAGE MILL RD
OREGON EXPY.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
N. MILPITAS / WARM SPRINGS BLVD
680
MISSION BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

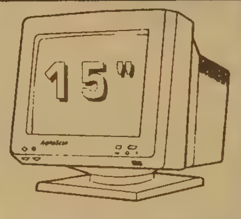
FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

SAMPO
AMERICA

1024 X 768 NON-INTERLACED 14" SUPER VGA MONITOR

1024 X 768 Non-Interlaced
Flat Screen • INVAR Shadow Mask
70HZ Refresh VESA
14" Large Screen
SAMPO KDM-1466 #1691731

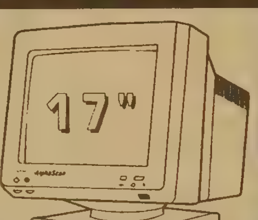
$388



1024 X 768 NON-INTERLACED 15" SUPER VGA MONITOR

1024 X 768 Non-Interlaced • Flat Screen
INVAR Shadow Mask70HZ Refresh VESA
15" Large Screen
SAMPO KDM-1566
#1691742

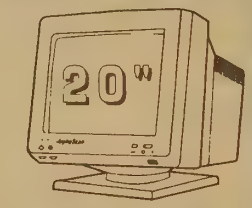
$499



1280 X 1024 NON-INTERLACED 17" SUPER VGA MONITOR

1024 X 768 Non-Interlaced Flat Screen
Up to 1280 x 1024 Resolution
INVAR Shadow Mask
70HZ Refresh VESA
17" Large Screen
SAMPO KDM-1766 #1691753

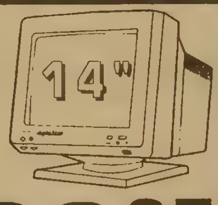
$799



1024 X 768 NON-INTERLACED 20" SUPER VGA MONITOR

1024 X 768
Non-Interlaced .31 Dot Pitch
Flat Screen
INVAR Shadow Mask
70HZ Refresh VESA
20" Large Screen
SAMPO KDM-2055 #1691764

$1199

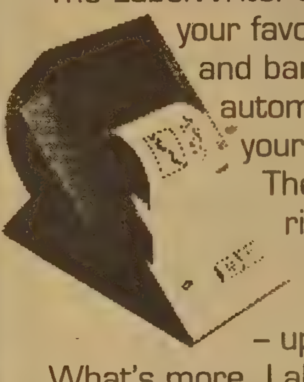


14" MAC VGA MONITOR

30 TO 40 KHZ WORKS WITH ALL MAC
EXCEPT QUADRA
.28 DOT
14" LARGE SCREEN
SAMPO KDM-1455A
#1735381

$\$369^{95}$

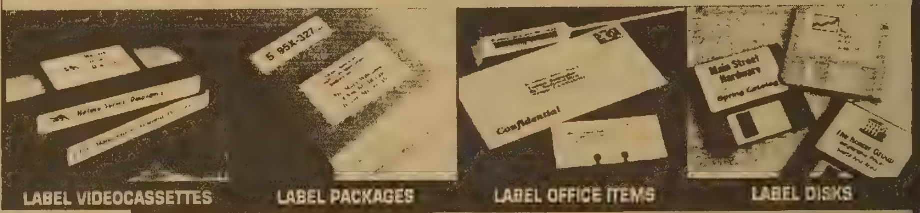
INTRODUCING THE LABEL PRINTER THAT DOES IT ALL UNDER WINDOWS.



Finally there's a label printer that takes full advantage of Windows and can be used over Windows networks. The LabelWriter® II Plus lets you design labels using all your favorite Windows fonts, bitmap graphics, and bar codes. Its AutoPrint feature automatically prints address labels while your main printer handles your letter. There's even a bar code generator rivaling stand-alone applications, and a Windows print driver so you can print directly from all your favorite programs – up to 350 labels in just 25 minutes. What's more, LabelWriter II Plus prints more label sizes, and holds bigger label rolls, than any of its competitors.

Call 1-800-426-7827 for more information.
Tel: 203-661-9700 Fax: 203-661-1540 ©1993 CoStar Corp.

COSTAR


LABEL VIDEOCASSETTES LABEL PACKAGES LABEL OFFICE ITEMS LABEL DISKS

COSTAR 60130 LabelWriter II Printer

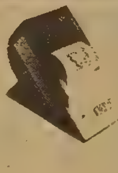
For IBM
Address Labels, Rolodex, Card,
File Folder plus more
1" Wide Print Head
#1660982

$\$199^{95}$

COSTAR 60100 LabelWriter II Printer

For MAC
Address Labels, Rolodex, Card,
File Folder plus more
1" Wide Print Head
#1661020

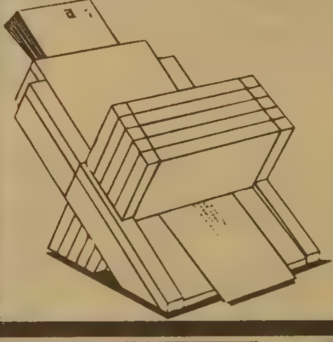
$199



COSTAR 60260 LabelWriter II+ Printer

For DOS and WINDOWS
Envelope, Labels, Postcard
w/Software and cables
1704059

$\$259^{95}$



COSTAR 40100
AddressWriter Printer

IBM or MAC
Envelope, Labels, Postcard
w/Software and cables
#1660948

$\$499^{99}$

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

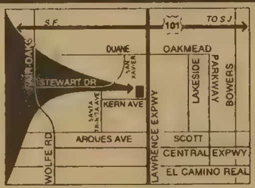
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

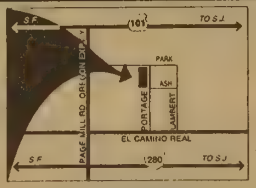
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND
MASTERCARD

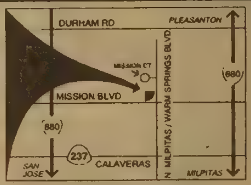
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
OAKMEAD
SAN XAVIER
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY
ARQUES AVE
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPY
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD
N MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

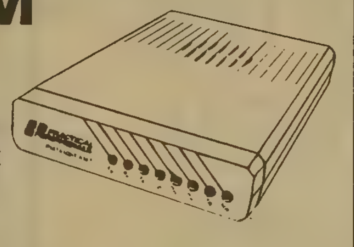
PRACTICAL PERIPHERALS®

PRACTICAL PERIPHERALS®

100% HAYES COMPATIBLE

PROUDLY MADE IN THE U.S.A.

14,000 MODEM 14,400 FAX



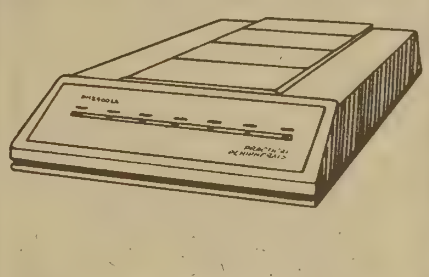
V.32 V.42 V.42 BIS
MINI TOWER MODEM
14,400 DATA AND FAX
QUICK LINK II SOFTWARE
LIFETIME WARRANTY
#1757781

PROUDLY MADE IN THE U.S.A.

LIFETIME WARRANTY!

$339

2400 MODEM 9600 FAX



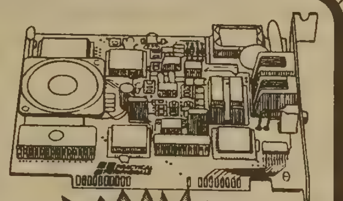
CABLE AND QUICK LINK SOFTWARE
#1729360

MACINTOSH

PROUDLY MADE IN THE U.S.A.

$139

PM14400FX INTERNAL FAX/MODEM



V.32 BIS up to 57,600 BPS W/DATA Compression
V.42B 9600B Fax Send and Receive
#1667912

LIFETIME WARRANTY!

PROUDLY MADE IN THE U.S.A.

$339^99

9600 BAUD EXTERNAL FAX 2400 BAUD MODEM

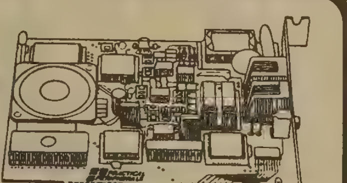
With Fax/Modem Software
#1657492

LIFETIME WARRANTY!

PROUDLY MADE IN THE U.S.A.

$109

INTERNAL 2400EFX MODEM 9600 SEND/ RECEIVE FAX



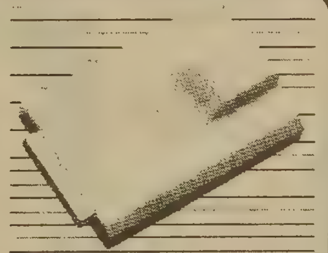
2400 MODEM WITH V.42 BIS
QUICK LINK 11 SOFTWARE
#1741759

PROUDLY MADE IN THE U.S.A.

LIFETIME WARRANTY!

$149

2400 MODEM 9600 SEND 4800 RECEIVE POCKET FAX



V.42 BIS SOFTWARE QUICK LINK
WITH BATTERY #1741748

PROUDLY MADE IN THE U.S.A.

LIFETIME WARRANTY!

$119

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For
Typographical Errors

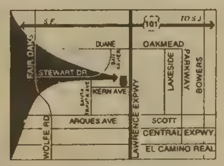
Prices good thru March 29, 1993

VISA AND MasterCard ACCEPTED

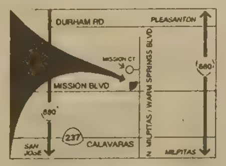
VISA

MasterCard

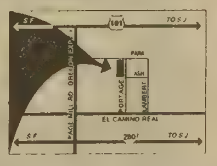
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM


S.F.
101
TO S.J.
DUANE
OAKMEAD
FAIR OAKS
SAN GABRIEL?
STEWART DR
SANTA ??? AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY
ARQUES AVE
SCOTT
CENTRAL EXPWY
WOLFE RD
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
MILPITAS / WARM SPRINGS BLVD
680
880
237
SAN JOSE
CALAVARAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700


S.F.
101
TO S.J.
PARK
ASH
OREGON EXPY
PAGE MILL RD
PORTAGE
LAMBERT
EL CAMINO REAL
280
S.F.
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

CORPORATE P.O. FAX # (408)735-6800

E.S.P.

EXTENDED SERVICE PLAN

Extend the Manufacturer's Warranty Through Fry's!

ON-SITE!*

Fry's now offers ON-SITE extended service plans to support the extended range of computing environments in today's workplace. Give our "Fry's on Wheels" support team the opportunity to solve your hardware problems. A $999 system configuration would cost only $225/year on a 2 year On-Site w/ Loaner Full-Service Plan.

A LOANER FOR THE OWNER!

Fry's understands the inconvenience of downtime due to manufacturer repair delays. In keeping with our total commitment to service and customer satisfaction we offer our ESP customers loaner equipment for any repairs which exceed a 24 hour turn around and are covered under Fry's Depot or On-Site Service Plan.

ALL AT NO EXTRA CHARGE!

Computers never sleep and neither do our service departments.

7 DAYS A WEEK!

Fry's Service departments are open weekdays and weekends during regular store hours to provide you with complete Depot, On-Site and telephone technical support.

DEPOT:

AT ANY OF FRY'S 3 SUPERSTORES

A) No deductible or hidden charges.
B) Renewable for the life of the product.
C) No limit to the number of repairs
D) Equipment repaired within 24 hours or loaner equipment will be provided.

Only $75/year on a 2 year Loaner Plan for a system costing $999

FACTORY CERTIFIED SERVICE TECHNICIANS

HEWLETT PACKARD
Authorized Dealer
A 50 YEAR TRADITION OF QUALITY.
HP DELIVERS PC PRODUCTS YOU CAN DEPEND ON.

Panasonic
Office Automation

24 HOUR *QUICK* RESPONSE TIME!

NOVELL
NETWARE NETWORK INSTALLATION & SERVICE

MOST CLONE COMPUTERS

IBM Business Partner
Authorized Personal Computer Dealer

IBM Printers
LEXMARK
Authorized Dealer

EPSON
Apple
Authorized Reseller

IF YOU DIDN'T BUY IT FROM FRY'S...

See us anyway!

We offer extended service protection on systems and printers purchased elsewhere. Bring your equipment into one of our three service departments and let Fry's courteous service technicians assist you in determining your computer service needs.*

* Subject to minimal evaluation & diagnostics fee to determine qualification for coverage.

Home of Fast, Friendly, Courteous Service

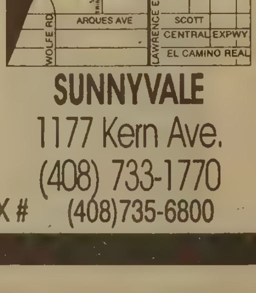
Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For Typographical Errors

HOLIDAY HOURS:
MON-FRI
8AM-10PM
SATURDAY
9AM-9PM
SUNDAY
9AM-8PM

VISA AND MASTERCARD

CORPORATE P.O. FAX #


S.F.
101
TO S J
MATHILDA / FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY
WOLFE RD
LAWRENCE EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800

S F
101
TO S J
OREGON EXP
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
EL CAMINO REAL
S F
280
TO S J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060

DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

Parana®
SUPPLIES CORPORATION

Parana Printer Ribbons Make a Great Impression.™

FOR EPSON

202S Black **$3.99**
For Models FX1050, MX100 #1595273

204S Black **$4.99**
For Models LQ1050, LQ1010, LQ1000 #1595675

205S Black **$4.99**
For Model LQ2550 #1611874

207S **$14.95**
For Models DFX-5000/8000 #1647341

208S Black **$4.99**
For Models EX800, EX1000 #1611885

FOR CITIZEN

131S **$4.95**
For Models 12D, 180D, GSX-140, GSX-200 BLACK #1595251

132S COLOR **$14.95**
For Model GSX-140 FOUR COLOR RIBBON #1662733

133S **$7.95**
For Model GSX-145 BLACK #1753204

134S COLOR **$15.95**
For Model GSX-145 #1753215

FOR IBM

251S Black **$3.99**
For Proprinter #1595686

252S Black **$4.99**
For Proprinter XL #1611944

255S Black **$8.99**
For IBM 2380/2390/2391/2381 #1723375

FOR PANASONIC

381S Black **$5.99**
For Models 1000, 1080, 1081, 1082, 1083, 1090, 1091, 1092, 1180, 1191 1592, 1593i #1595712

382S Black **$5.99**
For Models 1123, 1124, 1124i #1595723

383S **$5.95**
For Models 1624, 1695, #1647352

384S **$5.95**
For Model KX-P1524 #1647374

385S **$6.95**
For Model KX-P2180 BLACK #1753226

386S **$12.95**
For Model KX-P2180 COLOR #1753237

FOR IMAGEWRITER II

101S **$2.99**
BLACK #1595240

102S **$7.99**
COLOR #1662722

FOR TOSHIBA

425S Black **$4.49**
For Models P321, 341, 351SX #1611852

426S Black **$5.95**
For Models P321SL, P341SL #1611863

FOR NEC

301S Black **$6.95**
For Models P2200, P2200XE #1611830

302S Black **$6.25**
For Models P5200, 5300 #1611841

FOR STAR

401S Black **$4.49**
For Models NX1000 Series #1595734

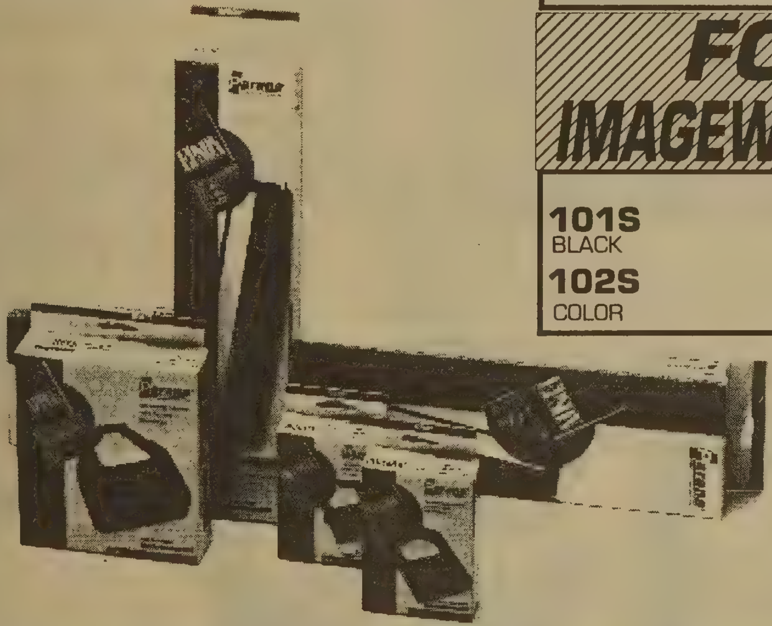
402S Black **$7.49**
For Model NX1020 #1662777

403 S COLOR **$11.95**
For Model NX1020 #1662788

FOR SEIKOSHA

390S **$7.99**
Black ribbon for models Seikosha SL-90/SL-92, SL-2400/PRIENTA 2400 #1723423

391S **$6.99**
Black ribbon for models Seikosha SP-2000, SL-80, SP-1600, PRIENTA 900 #1723456



Combined With Fry's Low Prices, Parana Ribbons Are A Great Value!

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

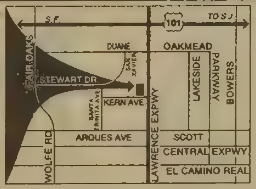
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typogrphical Errors

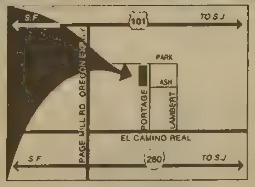
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD ACCEPTED

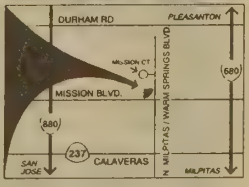
CORPORATE P.O. FAX #


S.F.
101
TO S J
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE
LAWRENCE EXPWY
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY
WOLFE RD
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800


S.F.
101
TO S J
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
OREGON EXPY
EL CAMINO REAL
S F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD.
N MILPITAS / WARM SPRINGS BLVD
880
237
SAN JOSE
CALAVERAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(415) 770-3700

National Semiconductor

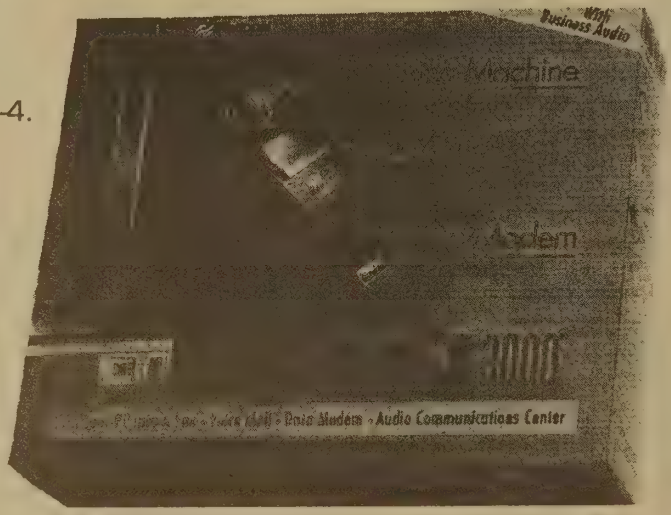
COMPUTER ENHANCEMENT GROUP

TyIN 2000™

DATA MODEM
- Up to 9600bps with v.42bis over 2400bps data transmission.
- Data compression with v.42bis and MNP2-4.
- Hayes compatible.

ANSWERING MACHINE
- Unlimited mail boxes and messages (limited only by available disk space).
- Digital voice compression.
- Full call progress and message monitoring
- Remote message retrieval
- Fax-and-touch-tone detection in paralllel with outgoing message.
- Time/dating stamping.
- Memo recording.

AUDIO PLAYBACK RECORDER
- Just like an audio Post-it™ Note
- Record and attach a voice memo to a document
- Play it back or send voice memo to another PC where someone can click on a voice icon and hear your message
- Interfaces to external microphone and speaker


With Business Audio
Machine
Modem
2000
Fax • Voice Mail • Data Modem • Audio Communications Center

FAX
- True background operation
- Error correction and advanced image compression for flawless faxes
- Group 3 compliant
- Faxes multiple documents to multiple destinations
- On-screen fax viewing and rotation
- Automatic redialing until line is connected
- Speed dialing with multiple phonebooks
- Automatic cover sheets
- Interfaces to scanner and telephone handset

VOICE MAIL

$199.99

#1743887

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

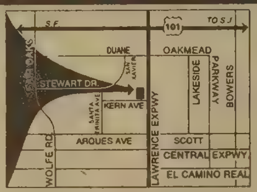
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

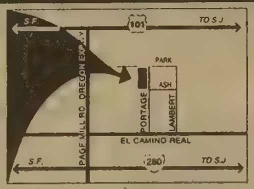
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

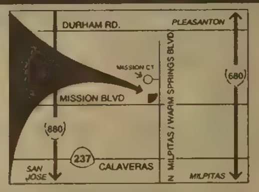
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J
DUANE
OAKMEAD
STEWART DR.
SAN XAVIER
KERN AVE
SANTA TRINITA AVE
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY
ARQUES AVE
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J
OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
EL CAMINO REAL
S.F.
280
TO S.J

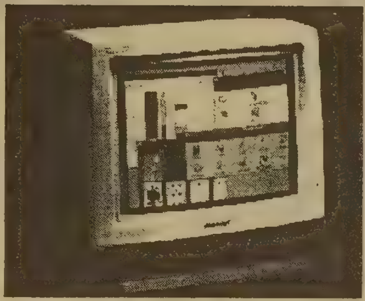
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

SONY.
SONY.

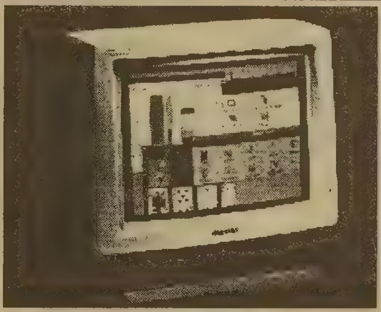
1024 x 768 NON-INTERLACED MONITOR



1024 X 768 72HZ
Non-Interlaced
.25mm Dot Pitch
110/220 Microprocessor Control
Model 1430 #1756388

$649.95

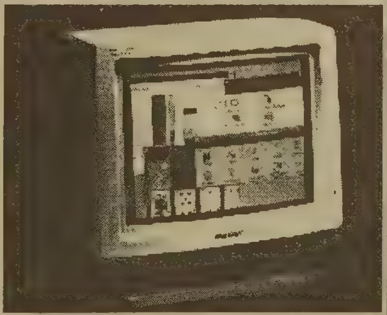
1604S
1024 x 768 17" MULTISCAN MONITOR



1024 X 768 • Non-Interlaced
.26mm Dot Pitch
Trinitron Black 17" Screen
Shadow Mask • Tilt 'n' Swivel Stand
Reduced Magnetic Frequency
#1643266

$1099

20" GDM-2036 MULTISCAN TRINITRON MONITOR



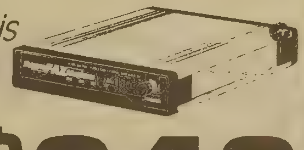
.30mm Dot Pitch • 1280 X 1024
Non-Interlaced with Display Memory System
Model GDM-2036
#1591383

$1999

Supra Corporation® Supra Corporation® Supra Corporation®

Supra Corporation® Supra Corporation® Supra Corporation®

SupraFAXModem™ V.32bis



MAC 14,400 BAUD MODEM
WITH V.42BIS
14,400 FAX
50-14FX-MC
#1722204

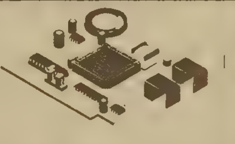
$349

SupraFAXModem™ V.32bis

14,400 BPS FAX MODEM
WITH V.42BIS
MNP 2-5
50-14FX-0
#1705625

$299.99

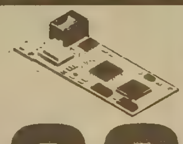
SupraFAXModem™ 24/96 INTERNAL



2400 MODEM
96 SEND 48 RECEIVE
MNP 2-7 SOFTWARE
V.42 BIS
#1735716

$69.99

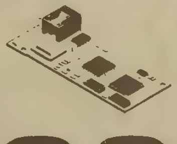
SupraFAXModem™ INTERNAL



14,400 SEND/RECEIVE FAX AND MODEM
MNP 2-5 HARDWARE V.42BIS
INTERNAL #1735727

$229

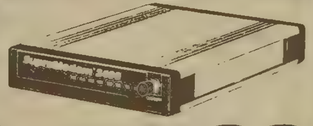
SupraFAXModem™ INTERNAL



14,400 SEND/RECEIVE FAX WINDOW AND MODEM
MNP 2-5 HARDWARE V.42BIS
INTERNAL 50-14FX WINDOW
#1746031

$229

SupraModem® 2400



EXTERNAL MODEM
2400 BAUD FOR DOS OR MACINTOSH
50-2400-0
#1751752

$69.99

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

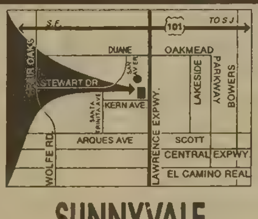
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typographical Errors

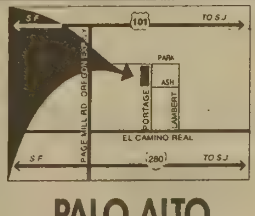
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

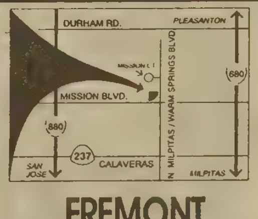
CORPORATE P.O. FAX #


S.F.
101
TO S.J.
DUANE
OAKMEAD
STEWART DR.
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
LAWRENCE EXPWY.
WOLFE RD.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800


S.F.
101
TO S.J.
PARK
ASH
PORTAGE
EL CAMINO REAL
280
S.F.
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
680
MISSION BLVD.
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

intel® intel®

Intel SatisFAXtion. Modem/100

Data. Fax. Great software.

Intel SatisFAXtion.
Modem/100
intel

SATISFAXTION 100
INTERNAL
2400 BAUD MODEM
9600 BAUD FAX

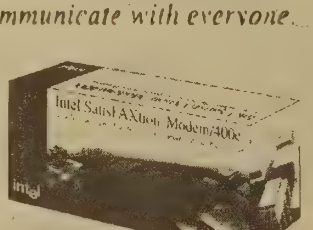
DOS/Windows
Crosstalk Communication Software
#1699647

$9995

2 FREE MOVIE PASSES WITH
EVERY PURCHASE OF AN INTEL MODEM
WHILE SUPPLES LAST!

Intel SatisFAXtion. Modem/400e

The best modem. The best fax. Communicate with everyone.


Intel SatisFAXtion. Modem/400e
intel

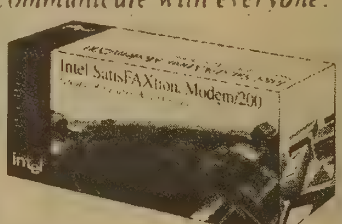
SATISFACTION
400e
EXTERNAL
14,000BPS BAUD MODEM
9600 BAUD FAX

14,400 bps External Modem • 42 bis DTE
115,200 bps
Smart Line
#1717815

$499

Intel SatisFAXtion. Modem/300

The best modem. The best fax. Communicate with everyone.


Intel SatisFAXtion. Modem/200
intel

INTERNAL
14,400BPS
DATA MODEM
9600 BPS FAX

14,400BPS data modem(v.32bis)
Up to 4:1 data compression 57,600bps(v.42bis)
High speed data buffer chip(16550 UART)
9600bps send/receive fax. Software included: FAX ability Plus, Crosstalk Communicator and DOS Fax software.
#1747010

$329

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

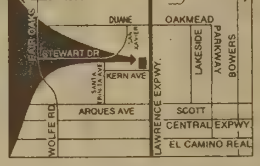
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

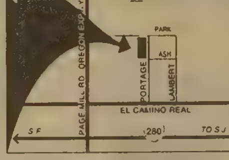
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

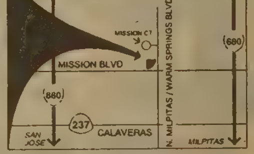
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S J
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR
KERN AVE
SANTA TRINITA AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S J
OREGON EXPWY
PARK
ASH
PAGE MILL RD
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD
880
N. MILPITAS / WARM SPRINGS BLVD
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

EPSON®

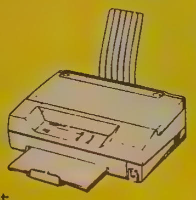
WHEN YOU'VE GOT AN EPSON
YOU'VE GOT A LOT OF COMPANY

EPSON'S NEW SCALABLE FONT DOT MATRIX PRINTERS HAVE BEEN WILDLY SUCCESSFUL - AND FRY'S™ HAS THEM!

EPSON Roman And San Serif- SCALABLE From 8 To 32 Points
9 Resident Bit-Mapped Fonts As Well As Top, Rear, Bottom and
Front Paper Feed Paths • Automatic Single Sheet And Continuous Form
Convertible Push/Pull Tractor • True 360 X 360 DPI Resolution for
Professional Quality Graphics • 2 Year Warranty

EPSON® ActionPrinter™ 3250

24 PIN PRINTER



50 Sheet Paper Cassette Tray • Quiet
ESC/P2 Control Language • Simple
Control Panel • Two Year Warranty

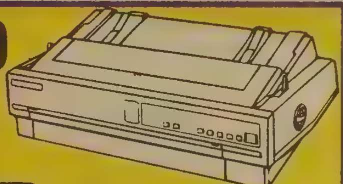
$199

AP-3250
#1667299

LQ-570

24 PIN PRINTER

w/ SCALABLE FONTS!

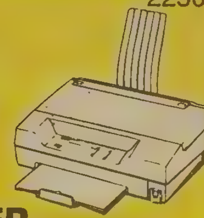


80 Column • 252 CPS Draft Mode
84 CPS Letter Quality
#1612004

$239

EPSON® ActionPrinter™ 2250

9 PIN IMPACT



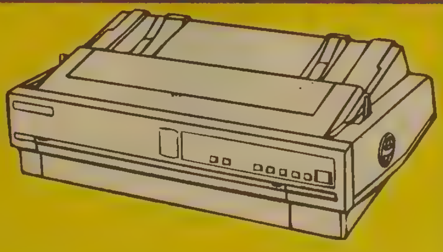
DOT MATRIX PRINTER

50 Sheet Paper Cassette Tray
240 CPS Draft, 48 CPS NLQ
Quiet • 2 Year Warranty
#1729120

$138⁹⁵

LQ-1070

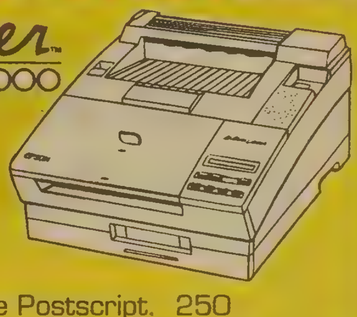
24-PIN PRINTER



136 Column • 11 Fonts
2 Scalable Fonts • 315 CPS Draft Mode 105 CPS
NLQ Mode #1620186

$359

EPSON® ActionLaser™ 1000



Fast six pages per minute print speed makes you more productive. HP LaserJet IIP and Epson dot matrix compatible. 14 resident fonts. 512KB memory expandable to 6.5MB on motherboard. 6000-page, single element imaging cartridge. Optional Adobe Postscript. 250 sheet paper tray.

Two year limited warranty.
#1760237

$749⁹⁹

Service EPSON® Extra Care Certificate for 1 year extended warranty service — **9-Pin Printer $39⁹⁵ 24-Pin Printer $59⁹⁵**

EPSON EXTRAS!

8750 EPSON RIBBON	Fits FX80/86E/850, LX800/810, APEX80 T-1000 #1418972	$5⁹⁵
8755 EPSON RIBBON	Fits FX100/185/286/286E, FX1050, MX/RX T-750 #1418983	$6⁹⁵
7753-RIBBON	Fits LQ SERIES (except LQ-1500) L-1000, L-4000 L-5400 #1418994	$5⁹⁵
7754 EPSON RIBBON	Fits LQ-1000/1010/1050, L-750, AP-4500 #1419009	$9⁹⁵
7762 EPSON RIBBON	Fits LQ-2500/2552/860 Black Ribbon #1419021	$9⁹⁵
8766 EPSON RIBBON	Fits DFX-5000/8000 Black Ribbon #1424867	$24⁹⁵
7763 EPSON RIBBON	Fits LQ-2500/2550/860 4-COLOR RIBBON #1445211	$19⁹⁵
7764 EPSON RIBBON	Fits LQ-2550/860 BLACK FILM RIBBON #1463879	$12⁹⁹
7768 EPSON RIBBON	Fits LQ-850/500/510, L-1000/4000 BLACK FILM RIBBON #1463880	$9⁹⁵
7770 EPSON RIBBON	Fits LQ-1000/1010/1050, L-510, AP-4500 BLACK FILM RIBBON #1463905	$11⁹⁹
EPSON 3250 RIBBON	3250 RIBBON 4/AP PRINTER S015032 #1667303	$7⁹⁵
EPSON S015047 RIBBON	FOR EPSON AP 2250 PRINTER #1751707	$7⁹⁹

Home of Fast, Friendly, Courteous Service

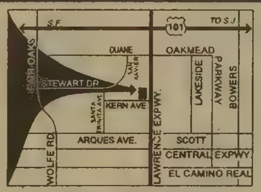
Fry's ELECTRONICS

Prices good thru March 29, 1993

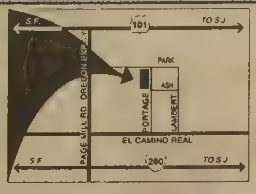
Limit Rights Reserved
Not responsible for typographical errors.

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

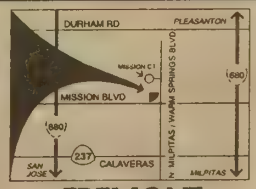
VISA AND MASTERCARD ACCEPTED


S.F.
101
TO S.J
FAIR OAKS
DUANE
SAN XAVIER
STEWART DR
SANTA TRINITA AVE
KERN AVE
OAKMEAD
LAKESIDE
PARKWAY
BOWERS
LAWRENCE EXPWY.
WOLFE RD
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J
PARK
ASH
OREGON EXPWY
PAGE MILL RD
PORTAGE
LAMBERT
EL CAMINO REAL
S.F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
680
680
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

DYSAN™

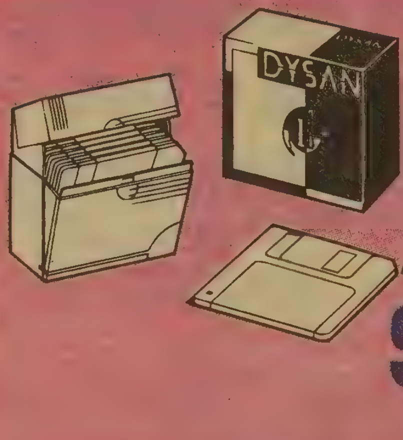
SAVE THE THINGS THAT MATTER MOST™

5.25" DS/DD

IBM FORMATTED DISKETTES

Plastic Disk Box Included
All Packaging Made
With Recycled Materials
Box Of Ten #1728978

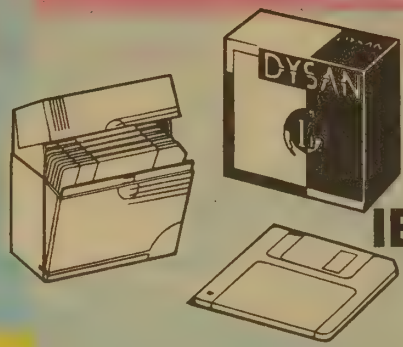
$5 99



3.5" DS/DD IBM FORMATTED DISKETTES

Plastic Disk Box Included
All Packaging Made With Recycled Materials
Box Of Ten #1729027

$7 99



3.5" DS/HD HI-DENSITY IBM FORMATTED DISKETTES

Plastic Disk Box Included
All Packaging Made With Recycled Materials
Box Of Ten #1729049

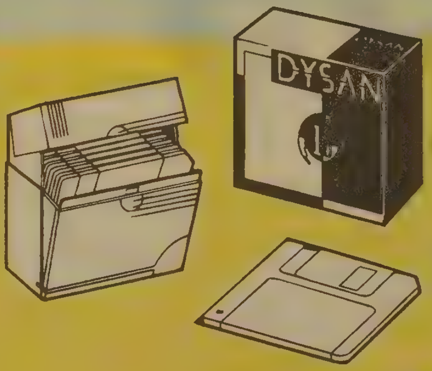
$9 99

5.25" DS/HD HI-DENSITY

IBM FORMATTED DISKETTES

Plastic Disk Box Included
All Packaging Made
With Recycled Materials
Box Of Ten #1729005

$7 99



3.5" DS/HD HI-DENSITY MAC FORMATTED DISKETTES

Plastic Disk Box Included
All Packaging Made With Recycled Materials
Box Of Ten #1729083

$10 49

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

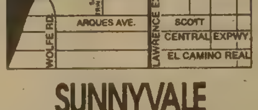
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

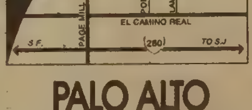
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD

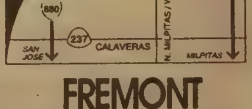
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
SAN JUAN XAVIER
OAKMEAD
STEWART DR.
SANTA TRINITA AVE
KERN AVE
LAWRENCE EXPWY.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
WOLFE RD.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPWY.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

WE'LL BEAT ANY IBM PRICE IN TOWN

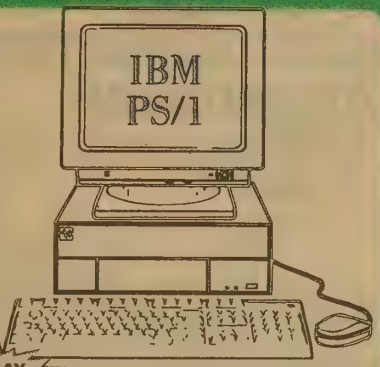
WE GUARANTEE IT!!!

IBM Business Partner

Authorized
Personal
Computer
Dealer

IBM PS/1 EXPERT Intel 486™ SX-25MHz

AT BUS



129MB Hard Drive
4MB RAM Expandable to32MB
3.5" 1.44MB Diskette Drive
3 AT® Slots and 3 Drive Bays
IBM 14" VGA Color Monitor
IBM Mouse & Keyboard
2400 bps Internal Modem

- **Novell® certified**
- **IBM Quality and Reliability**
  The PS/1 Expert is built to IBM's exacting standards for quality and reliability.

VGA DISPLAY INCLUDED!

All You Need In One Box!

- **Preloaded Software**
  IBM DOS 5.0
  Microsoft ® Windows™ 3.1
  MS Works for Windows
  Tutorial, Index • PRODIGY®
  Fitness • Virus check,
  Promenade℠**
  Address Book Plus®
- **Support and Service**
  The exclusive online PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

IBM Business Partner

Authorized
Personal
Computer
Dealer

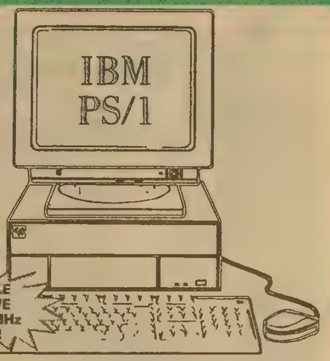
intel inside

$1399

MODEL 2133-S53 #1735820

IBM PS/1 EXPERT Intel 486™ SX-25MHz

AT BUS



UPGRADEABLE W/OVERDRIVE TO 486SX-50MHz OPERATION!

170MB Hard Drive
4MB RAM Expandable to32MB
3.5" 1.44MB Diskette Drive
5 AT® Slots and 5 Drive Bays
IBM 14" .28 SVGA
Color Monitor
IBM Mouse & Keyboard
2400 bps Internal Modem

- **Novell® certified**
- **IBM Quality and Reliability**
  The PS/1 Expert is built to IBM's exacting standards for quality and reliability.

VGA DISPLAY INCLUDED!

All You Need In One Box!

- **Preloaded Software**
  IBM DOS 5.0
  Microsoft ® Windows™ 3.1
  MS Works for Windows
  Tutorial, Index • PRODIGY®
  Fitness • Virus check,
  Promenade℠**
  Address Book Plus®
- **Support and Service**
  The exclusive online PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

IBM Business Partner

Authorized
Personal
Computer
Dealer

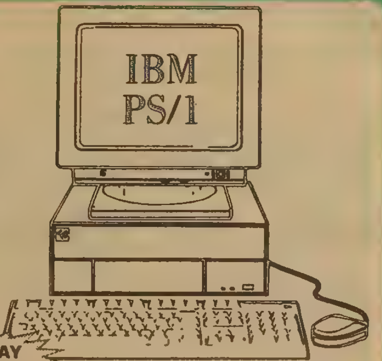
intel inside

$1699

MODEL 2155-S54 #1735831

IBM PS/1 EXPERT Intel 486™ DX-33MHz

AT BUS



211MB Hard Drive
8MB RAM Expandable to32MB
3.5" 1.44MB Diskette Drive
5 AT® Slots and 3 Drive Bays
IBM 14" SVGA
.28mm Color Monitor
IBM Mouse
IBM Selectric
Touch™ Keyboard
2400 bps Internal Modem

- **Novell® certified**
- **IBM Quality and Reliability**
  The PS/1 Expert is built to IBM's exacting standards for quality and reliability.

VGA DISPLAY INCLUDED!

All You Need In One Box!

- **Preloaded Software**
  IBM OS/2
  Tutorial,
  IBM PS/1 Index
  IBM PS/1 Fitness with virus check,
  Promenade℠**
  Bonus Software: Address Book Plus®
- **Support and Service**
  The exclusive online PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

IBM Business Partner

Authorized
Personal
Computer
Dealer

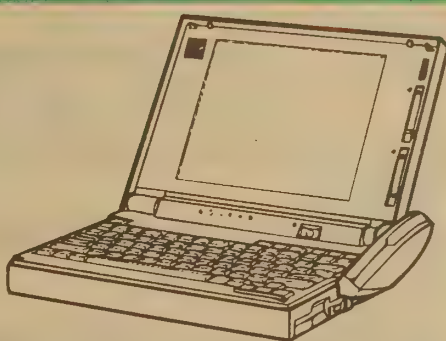
intel inside

$2399

MODEL 2155-S76 #1705418

IBM PS/1 EXPERT Intel 386™ SL-25MHz NOTEBOOK

AT BUS



80MB Hard Drive
2MB RAM Expandable to 16MB
3.5" 1.44MB Diskette Drive
IBM Mouse & Keyboard
2400 bps Internal Fax / Modem

- **IBM Quality and Reliability**
  The PS/1 Expert is built to IBM's exacting standards for quality and reliability.

All You Need In One Box!

- **Preloaded Software**
  IBM DOS 5.0 • Microsoft ® Windows™ 3.1
  MS Works for Windows
  Tutorial, Index
- **Support and Service**
  The exclusive on-line PS/1 Club™ answers your computing questions 20 hours a day, 365 days a year.

intel inside

IBM Business Partner

Authorized
Personal
Computer
Dealer

MODEL 2133-S13 #1709065

$1699

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typographical Errors

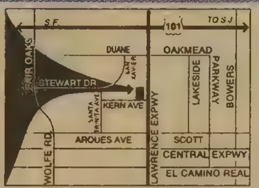
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA

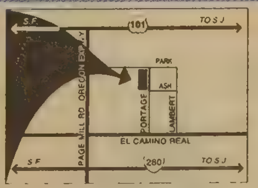
MasterCard

VISA AND MASTERCARD

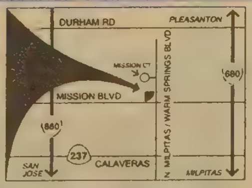
®IBM and Personal System/1 are registered trademarks of International Business Machines Corporation.


S.F.
101
TO S J
DUANE
OAKMEAD
FAIR OAKS
STEWART DR
LAKESIDE
PARKWAY
BOWERS
SANTA TRINITA AVE
KERN AVE
ARQUES AVE
SCOTT
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S J
OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
EL CAMINO REAL
S F
280
TO S J

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
680
880
237
SAN JOSE
CALAVERAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

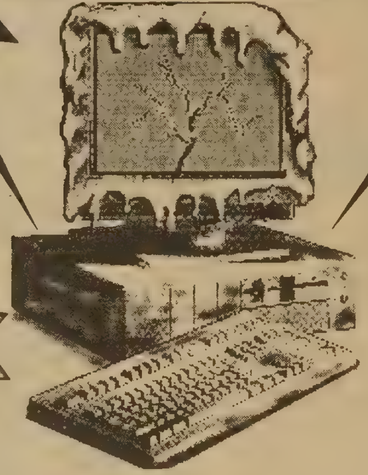
CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

AVOID SYSTEM MELTDOWN!

Brooks Power Systems, Inc.

TVS

Transient **V**oltage **S**urge
They can destroy your machine or
cause intermittent errors.
**PROTECT YOURSELF,
YOUR INVESTMENT AND
YOUR PRECIOUS TIME!**

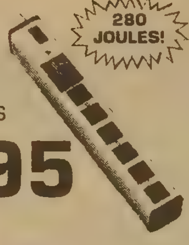


UNCONDITIONAL LIFETIME WARRANTY!

FIREPROOF ALUMINUM CASING!

SURGE STOPPER

6 OUTLET
VCN SURGE PROTECTOR



280 JOULES!

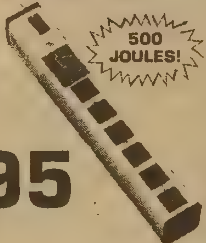
- 5 Component • 3 Line Surge and Noise Filter • 280 Joules • 15 AMPS
- Response Time <5 picoseconds
- $10,000 Equipment Replacement Guarantee

#1756344

$10,000 EQUIPMENT REPLACEMENT GUARANTEE!

$39.95

6 OUTLET
HD SURGE PROTECTOR



500 JOULES!

- 10 Component • 3 Line Surge and Noise Filter
- 500 Joules • 15 AMPS
- Response Time <1 picosecond
- $1,000,000 Equipment Replacement Guarantee
- Fail Safe Suppression Circuit

#1756355

$1,000,000 EQUIPMENT REPLACEMENT GUARANTEE!

$54.95

6 OUTLET
BN SURGE PROTECTOR

750 JOULES!

- Six Stage • 15 Component • 3 Line Surge and Noise Filter
- 750 Joules • 15 AMPS
- Response Time <1 picosecond
- $2,000,000 Equipment Replacement Guarantee
- Fail Safe Suppression Circuit

#1756366

$2,000,000 EQUIPMENT REPLACEMENT GUARANTEE!

$74.99

COMPUTER PERIPHERALS, INC.™

VIVA 14.4 EXTERNAL FAX/MODEM 14,400 BPS V.32 BIS

9600B Send/Receive Fax 14,400BPS
Modem CPI 502402
#1704646

$289

EXTERNAL 9600 SEND/RECEIVE FAX MODEM

V.42 BIS With Winfax software
#1754238

$139.99

9600 BAUD SEND/RECEIVE FAX 2400 BAUD EXTERNAL MODEM

Runs under Windows environment
with Winfax Software
CPI 502517 2496EF
#1704727

$109.95

SEND/RECEIVE MAC MODEM W/CABLE

CPI 502404 VIVA 14.4 MAC
EXTERNAL 14,400 BPS/V.32
V.32BIS;
#1704657

$299

EXTERNAL FAX MAC MODEM

2400B MAC MODEM WITH
9600 SEND/RECEIVE FAX FOR
MAC W/CABLE • 502506

#1704705

$109

EXTERNAL MAC MODEM

CPI HOOK-UP 2400SE/MAC
2400 EXTERNAL MAC MODEM

#1704680

$79.99

Fry's ELECTRONICS

Home of Fast, Friendly, Courteous Service

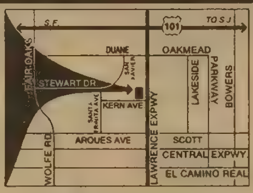
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

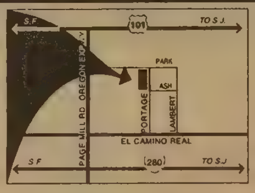
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

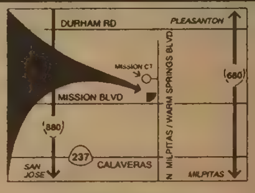
CORPORATE P.O. FAX #


S.F.
101
TO S.J.
DUANE
OAKMEAD
FAIR OAKS
STEWART DR
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
SCOTT
LAWRENCE EXPWY
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD

SUNNYVALE
1177 Kern Ave.
(408) 733-1770
(408)735-6800

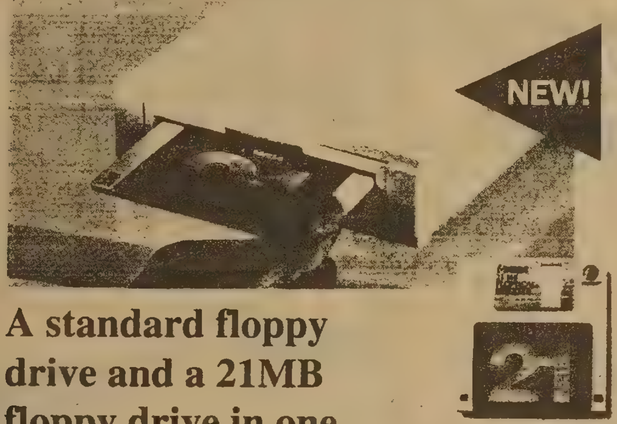

S.F.
101
TO S.J.
PAGE MILL RD
OREGON EXP
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
280
S.F.
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS
N. MILPITAS / WARM SPRINGS BLVD

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

IOMEGA®



A standard floppy drive and a 21MB floppy drive in one.

IOMEGA 21MB FLOPTICAL DRIVE

- 21MB capacity on inexpensive 3.5" size media
- Read & writes to standard floppies
- Up to 3 times faster than floppies
- Holographic Optical Tracking (HOT) for higher performance and reliability than other flopticals
- New Laser Etched Disks from Iomega - each one is a master

FEATURES/BENEFITS:
- Solution for PC and Mac
- 14 times the capacity of floppies
- Same cost per MB as floppies
- Lowest cost add-on storage
- Fastest Floptical available
- Laser Holographic design is simpler, faster and more reliable
- Complete system - drive, adapter, software and Laser Etched Media
- Iomega floptical media available in single and five packs

MODEL AVAILABLE:

Floptical PC Powered #1765117	**$399.99**
MAC Floptical Subsystem #1765128	**$399.99**

Handles like a floppy, performs like a hard disk.

BERNOULLI MULTIDISK™ 150

- 150MB (300MB with included compression)
- 18-msec effective access time
- Rugged Bernoulli Technology
- The right disk for the right job
- Reads and writes 90MB Bernoulli Disks, reads 44MB Bernoulli Disks

MODEL AVAILABLE:

Insider MultiDisk 150MB for PC & MAC #1765047	**$899**
#1765058	**$899**
PC Powered 90MB #1765069	**$599**
MAC Transportable 90MB #1765070	**$599**

Home of Fast, Friendly, Courteous Service

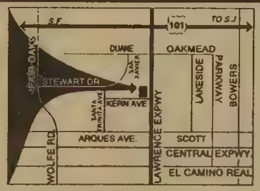
Fry's ELECTRONICS

Prices good through March 29, 1993

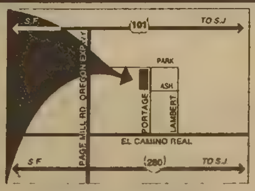
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

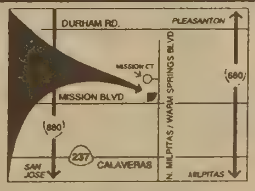
VISA AND MASTERCARD


S.F.
101
TO S.J.
DUANE
OAKMEAD
STEWART DR.
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY.
EL CAMINO REAL
WOLFE RD.
LAWRENCE EXPWY.

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
280
PAGE MILL RD./OREGON EXPWY.

PALO ALTO
340 Portage Ave.
(415) 496-6000


DURHAM RD.
PLEASANTON
MISSION CT.
MISSION BLVD
680
880
237
CALAVERAS
SAN JOSE
MILPITAS
N. MILPITAS / WARM SPRINGS BLVD

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

PROTECT YOUR BIGGEST INVESTMENT!

X·10 PROTECTOR PLUS™

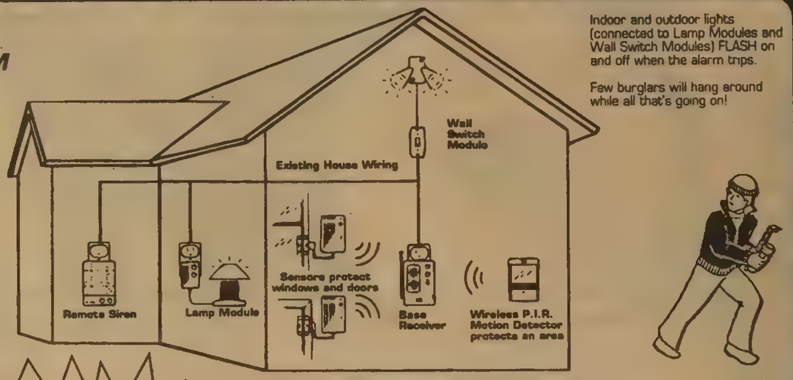
WIRELESS SUPERVISED

HOME SECURITY SYSTEM

HS9000 -9 PIECE SYSTEM

INSTALLS IN MINUTES- NO TOOLS -NO WIRING

Professional features and reliability
Supervised (self-checking) sensors
Protects up to 16 doors/windows (with extra sensors)
Loud alarm plus flashing lights • remote light control
Wireless passive infrared motion detector (optional)
Wireless 110 dB remote siren (optional)


Wall Switch Module
Existing House Wiring
Remote Siren
Lamp Module
Sensors protect windows and doors
Base Receiver
Wireless P.I.R. Motion Detector protects an area

Indoor and outdoor lights (connected to Lamp Modules and Wall Switch Modules) FLASH on and off when the alarm trips.

Few burglars will hang around while all that's going on!

Door/window sensors and remote controls send wireless signals to base receiver

The Remote Control arms and disarms the system and controls lights remotely

COMPLETE HOME SECURITY SYSTEM

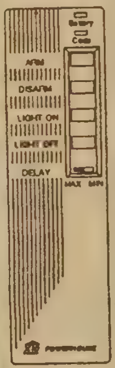
Model HS9000 #1591501

$229⁹⁵

MINI REMOTE CONTROL MINIATURE KEY CHAIN

Model KF574
#1591512

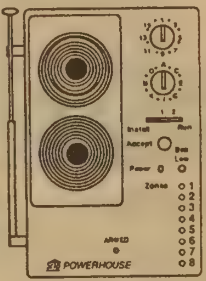
$19⁹⁵


ARM
DISARM
LIGHT ON
LIGHT OFF
DELAY
MAX MIN
POWERHOUSE

REMOTE CONTROL

The system is armed and disarmed by the press of a single button-simple! You can also control lights remotely.
Model HT544
Included in kit
#1481138

$19⁹⁹


Install
Run
Accept
Power
Zones
1 2 3 4 5 6 7 8
POWERHOUSE

BASE RECEIVER

Base Receiver makes a loud noise when alarm is tripped and sends signals over existing house wiring to flash lights connected to X-10 modules.
Model BR521
Included in kit

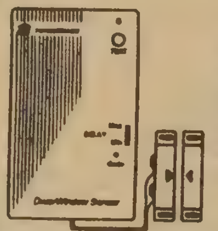
Not sold seperately. Sold as part of the security system only.

POWERHOUSE

MOTION DETECTOR

Supervised Wireless Motion Detectors send signals to trip the Base Receiver's alarm when someone walks within range.
Model SP544
Optional
#1515486

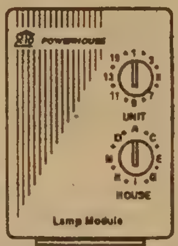
$59⁹⁵


DELAY
Door/Window Sensor

DOOR/WINDOW SENSOR

Sensors send wireless signals to the Base Receiver when a door or window is opened. You can protect up to 16 door/windows by adding more sensors. Sensors are supervised for professional reliability- they report in to the Base Receiver every 90 minutes.
Model DW534
Included in kit
#1481149

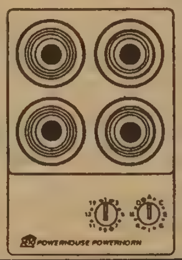
$14⁹⁹


POWERHOUSE
UNIT
HOUSE
Lamp Module

LAMP MODULE

A lamp plugged into the Lamp Module will flash on and off when the alarm trips. You can also turn the lamp off and on by remote control.
Model LM465
Included in kit
#1481150

$12⁹⁵


POWERHOUSE POWERHORN

POWER HORN SIREN

Remote wireless 110 dB siren receives signals over house wiring and trips when Base Receiver's alarm is tripped.
Model PH508
Optional
#1515453

$49⁹⁵

The Protector Plus Supervised Security System can be expanded into a Home Automation System. The items shown below can be used either with the security system or alone to let you turn lights and appliances on and off by remote control. A complete range of controllers is available. The controllers send signals over existing house wiring to control lights and appliances connected to various types of modules. You can time your lights to turn on and off to give your home a lived-in appearance or even turn them on and off from any touch-tone phone. Everything just plugs in. It"s just that simple!

WIRELESS REMOTE CONTROL RC5000

$39⁹⁵
#139994

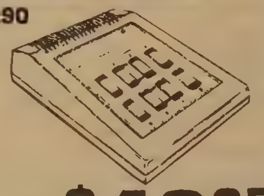
MINI TIMER MT522

$29⁹⁵
#1425581

MAXI CONTROLLER SC503

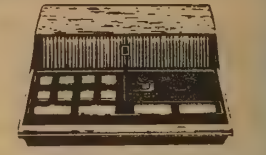
$19⁹⁵
#1188832

COMPUTER INTERFACE CP290



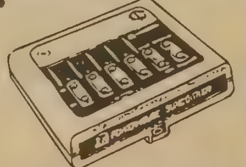
$49⁹⁵
#151860

TELEPHONE RESPONDER TR551



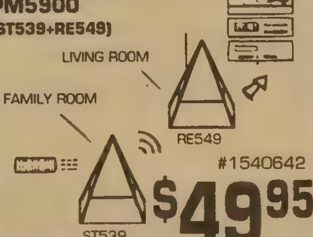
$74⁹⁵
#122064

DUSK-TO-DAWN SUNDOWNER SD533



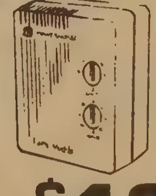
$19⁹⁵
#1481172

POWERMIND REMOTE EXTENDER PM5900
(ST539+RE549)


LIVING ROOM
FAMILY ROOM
RE549
ST539

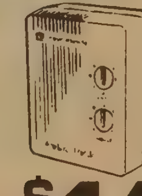
#1540642
$49⁹⁵

LAMP MODULE LM465



$12⁹⁵
#1481150

APPLIANCE MODULE AM466



$14⁹⁵
#118600

WALL SWITCH MODULE WS467

$14⁹⁵
#118674

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

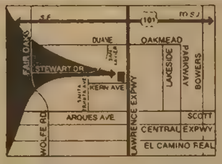
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

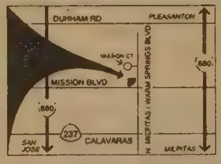
MasterCard
VISA
VISA AND MASTERCARD ACCEPTED

CORPORATE P.O. FAX #


S.F.
101
TO S.J.
FAIR OAKS
DUANE
OAKMEAD
STEWART DR
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
WOLFE RD
LAWRENCE EXPWY
SCOTT
CENTRAL EXPWY
EL CAMINO REAL

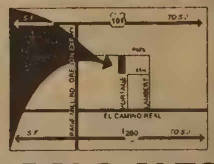
SUNNYVALE

1177 Kern Ave.
(408) 733-1770
(408)735-6800


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
MILPITAS / WARM SPRINGS BLVD
680
880
237
CALAVARAS
SAN JOSE
MILPITAS

FREMONT

440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700


S.F.
101
TO S.J.
PAGE MILL RD
OREGON EXPWY
PORTAGE
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO

340 Portage Ave.
(415) 496-6000
(415) 496-6060

American Power Conversion

AVOID SYSTEM MELTDOWN

7 OUTLET SURGE ARREST

$1,000 EQUIPMENT LIFETIME WARRANTY

240 Joules Dissipation
Site fault wirieng indicator
Reduce Intermittent
Lock Ups & Parity Errors
With EMI/RFI Filtering
#1651256

$19⁹⁹

INSTANTANEOUS Ø NANOSECOND RESPONSE TIME!

7 OUTLET SURGE ARREST+

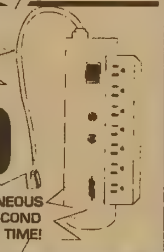
$10,000 EQUIPMENT LIFETIME WARRANTY

Reduce Random Lock ups
& Parity Errors With EMI/RFI Filtering
Site fault wirieng indicator
#1651290

$39⁹⁹

INSTANTANEOUS Ø NANOSECOND RESPONSE TIME!

7 OUTLET SURGE ARREST



$25,000 EQUIPMENT LIFETIME WARRANTY

WITH FAX/MODEM PROTECTION

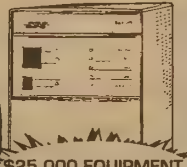
APC Surge Arrest • 7 Outlet
Site fault wirieng indicator
480 Joule Dissipation
EMI/RFI Filtering
Status and Wiring Faults Leds
#1651326

$69⁹⁹

INSTANTANEOUS Ø NANOSECOND RESPONSE TIME!

DETER DATA DISASTER

BACK UPS 250



Modified Sine wave output safer for
all equipment types than square wave
250 Volt/AMP Backup Power Supply
2 Outlet • EMI/RFI filtering
10 Minutes Back-Up
At 250VA
#1651164

$109⁹⁹

$25,000 EQUIPMENT 2 YEAR WARRANTY

400VA UNINTERUPTIBLE POWER SUPPLY

2 Outlets • Self test switch
Alarm disable switch
Built in surge protection
400VA BACKUP w/ EMI/RFI
& Surge Protection
D89 Status Port. AT w/VGA for
20 Minutes
#1651175

$229⁹⁹

$25,000 EQUIPMENT 2 YEAR WARRANTY

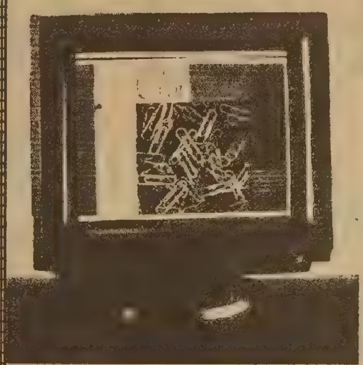
BACK UPS 600

Self test switch
Alarm test switch
Built in surge protector
M600 Volt/AMP Backup
Power Supply • 4 Outlet
EMI/RFI filtering
10 Minutes Back-Up At 600VA
#1651197

$349

$25,000 EQUIPMENT 2 YEAR WARRANTY

SIGMA DESIGNS®



ColorMax™ 15

Color display for Macintosh PowerBook 160, 180 and Duo computers

ColorMax 15 is a desktop plug-and-play color display ideal for use when creating high impact color presentations, multimedia demos and other serious color graphics applications in PowerBook computing environment. ColorMax 15 works with Macintosh PowerBook 160 and 180, and Powerbook Duos with Duo Dock or Duo MiniDock. It also works with Macintosh LC, IIsi, IIci, IIvi, Ilvx and Quadra series computers.

#1764998

$799

Full Range of
256 Grays

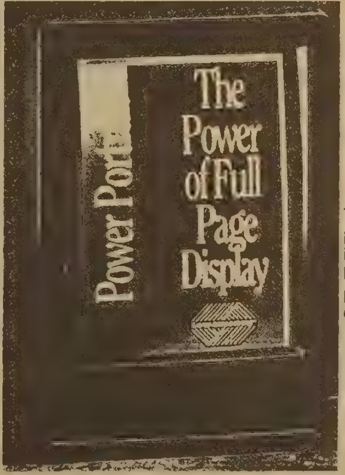
PageView GS™

Full-page greyscale display system for the Macintosh computer

PageView GS is a cost-effective flat 15" greyscale portrait display ideal for displaying a full page of text or graphics. It can view an entire page of images without scrolling. PageView GS also meets the latest Swedish guidelines for reduced VLF/ELF magnetic field emissions for your comfort and peace of mind. Other ergonomic features include sharp focus, high refresh rate, tilt/swivel base and optional anti-glare, anti-static coating. And PageView GS comes in two colors - granite or platinum - designed to match your Macintosh computer.

#1764987

$599



Power Portrait

For Macintosh™ Plus, Classic, Classic II, SE, SE/30 and PowerBook Computers

The Power Portrait 15" portrait display give you high performance at a low cost. And because the video card is built in the Power Portrait display, installation is easy-just plug the Power Portrait directly into Macintosh SCSI port. In addition, a pass-through connector lets you connect up to six other devices, including hard disk, printers and scanners.

#1764965

$699

HOME OF FAST, FRIENDLY, COURTEOUS SERVICE

Fry's ELECTRONICS

Limit Rights Reserved
Not Responsible For
Typographical Errors

Prices good thru
March 29. 1993

STORE HOURS
MON - FRI
8AM - 9PM
SATURDAY
9AM - 8PM
SUNDAY
9AM - 7PM

SUNNYVALE 1177 Kern Ave. (408) 733-1770
CORPORATE P.O. FAX # (408)735-6800

PALO ALTO 340 Portage Ave. (415) 496-6000
CORPORATE P.O. FAX # (415) 496-6060

FREMONT 440 Mission Ct. (510) 770-FRYS(3797)
CORPORATE P.O. FAX # (510) 770-3700

VISA
MasterCard
VISA and MasterCard Accepted

YOU CAN'T DUPLICATE XEROX QUALITY

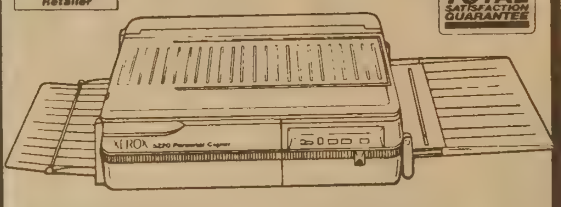
XEROX

PERSONAL COPIER

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE


XEROX 5220 Personal Copier

Don't settle for a copy when you can have the original... Xerox. Xerox is so confident in the quality and reliability of it's copiers that it offers an exclusive 3 year warranty on all it's copiers. This model offers a paper tray that stacks 40 sheets, a built-in carrying handle and removable storable paper trays, multi-copy capability which can be set from 1 to 9 copies or "C" for continuous up to 20 copies, and automatic exposure which scans documents for degrees of lightness or darkness to determining the appropriate exposure setting.
An Invaluable addition to any home office. At only....

Model 5220
#1706095

DRY INK CARTRIDGE NOT INCLUDED

$497

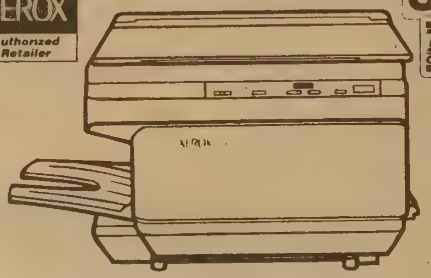
XEROX

COPIER w/REDUCTION & ENLARGEMENT

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE



If you're looking for versatility and premium performance in a copier your search is over! Xerox has designed a copier that incorparates reduction/enlargement technology enabling you to reduce a copy 75% and 95%, and enlarge to 124%, a 250 sheet paper tray which adjusts to hold memo to letter to legal size paper, built-in automatic exposure which scans documents for degrees of lightness or darkness to determine the appropriate exposure setting, multi-copy capability of 1 to 50 copies, letter and legal size copying, and manual bypass, all backed by the experts at team Xerox. Now just...

Model 5009
#1706109

DRY INK CARTRIDGE NOT INCLUDED

$797

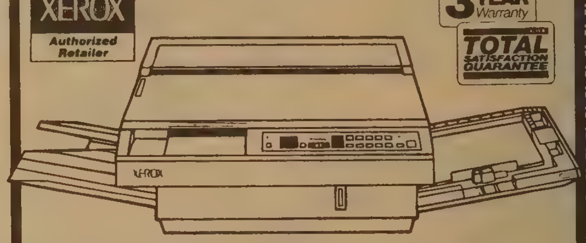
XEROX

SMALL BUSINESS COPIER w/REDUCTION & ENLARGEMENT

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE



Xerox engineers have developed an affordable copier for businesses with high volume demands. The Included copy cartridge is designed to deliver 18,000 copies and is guaranteed to deliver 16,000 before needing replacement. Other features include a 250 sheet paper tray, automatic exposure, photo mode to make clear copies of photographs, a graphic display which indicates the location of jammed paper, that the paper tray is empty, and that the copy cartridge is nearing th end of it's life, a multi-copy button that can be set from 1 to 99 copies, dual electonic meters which displays the number of copies made by the cartridge in use of and the total number of copies made by the copier, an output tray that collects up to 110 finished copies, and much more.
An excellent investment at...

Model 5011
#1706121

$1647

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

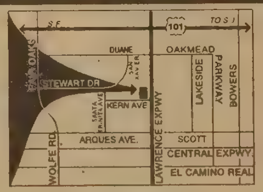
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

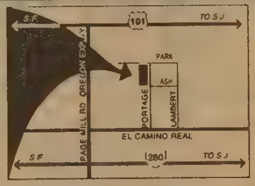
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

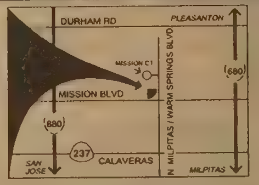
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S J
DUANE
OAKMEAD
FAIR OAKS
SAN XAVIER
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
WOLFE RD
ARQUES AVE.
LAWRENCE EXPWY
SCOTT
CENTRAL EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S J
PAGE MILL RD OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S J

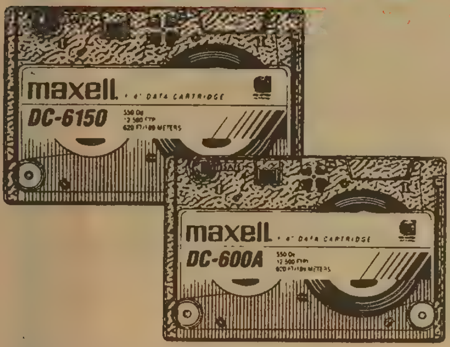
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD
PLEASANTON
MISSION CT
680
MISSION BLVD
N MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

maxell®

DATA TAPE CARTRIDGE


maxell
DC-6150
maxell
DC-600A

DC6150 150MB
1/4" TAPE
650FT. #1630592
$19.99

DC600A 60MB
1/4" TAPE
600FT. #1630581
$19.49

DC 2120R
120MB
#1720235
$18.95

DC2120R XIMAT
120MB
#1720246
$22.99

DC-2000R 40MB 205 FT

RECORD
maxell
DC-2000

DC2000 Compatable

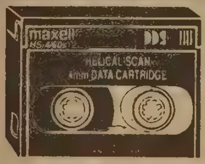
$12.99 #1630606

CS-600 XD 155MB

$15.95 #1527218

CS-600 SX 600MB

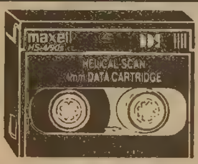
NEW **$29.99** #1764138


maxell
HS-4/60S
HELICAL SCAN
4mm DATA CARTRIDGE

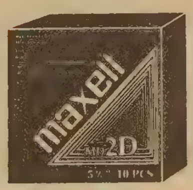
HS-4/60 DATA CARTRIDGE
1.3 Gigabyte 4mm
Helical-Scan Data Cartridge
#1527229
$12.95

maxell
HS-8/112

HS-8/112 DATA CARTRIDGE
2.5 Gigabyte 8mm
Helical-Scan Data Cartridge
#1527230
$11.95


maxell
HS-4/90S
HELICAL SCAN
4mm DATA CARTRIDGE

HS-4/90 DATA CARTRIDGE
2 Gigabyte 4mm
Helical-Scan Data Cartridge
#1630558
$16.99


maxell
MD2-D
5¼" 10 PCS

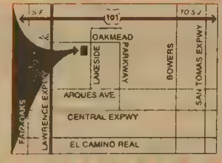
maxell
MF2HD
3½" 10 PCS

MAXELL DISKETTES

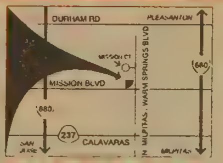
MD2-D FRMT 5.25" DS/DD DISKS #1495674	$5.49
MD2-HD FRMT 5.25" DS/HD DISKS #1495685	$8.99
MD2D 5.25" DS/DD DISKS #139880	$4.98
MD2HD 5.25" DS/HD DISKS #94858	$8.49
MF2-HDM 3.5" DS/HD DISKS #139540	$11.98
MF2-DD FRMT 3.5" DS/DD DISKS #1495 696	$7.99
MF2-HD FRMT 3.5" DS/HD DISKS #1495700	$12.49
MF2-HD MAC FRMT 3.5" DS/HD DISKS #1764116	$12.49

Fry's ELECTRONICS

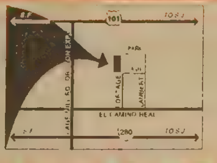
Home of Fast, Friendly, Courteous Service


S.F.
101
TO S.J.
OAKMEAD
LAKESIDE
PARKWAY
BOWERS
SAN TOMAS EXPWY
FAIR OAKS
LAWRENCE EXPWY
ARQUES AVE
CENTRAL EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave
(408) 733-1770


DURHAM RD
PLEASANTON
MISSION CT
MISSION BLVD
WARM SPRINGS BLVD
680
880
237
CALAVARAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS(3797)


S.F.
101
TO S.J.
PARK
EL CAMINO REAL
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000

CORPORATE P.O. FAX NUMBER
(408) 735-6800 (510) 770-3700 (415) 496-6060

HOURS
MON-FRI 8AM-9PM
SAT 9AM-8PM
SUN 9AM-7PM

VISA AND MASTERCARD ACCEPTED

Prices good thru March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

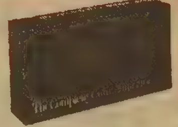
TheComplete PC

The Complete Communicator Gold

A personal communications center for your PC which combines advanced, high-speed facsimile (9600 bps), sophisticated voice mail and a 9600 bps V.42bis data modem on a single add-in card. Runs completely in background mode. Send faxes to an individual or to a group of people and schedules calls. Voice messaging and call processing, including password-protected mail boxes, message forwarding and complete remote access.
#1733172

$399.99

The Complete Communicator



A personal communications center for your PC which combines advanced, high-speed facsimile (9600 bps), sophisticated voice mail and a 2400 bps data modem on a single add-in card. Runs completely in background mode. Send faxes to an individual or to a group of people and schedule calls. Voice messaging and call processing, including password-protected mail boxes, message forwarding and complete remote access.
#1477762

$149*

*After factory rebate.
In-store price $299

The Complete Modem Plus with RapidFax Software

9600 Baud FAX/2400 Baud Modem

Windows/DOS applications • Background Operation
MNP-5 • RapidFax Communication Software
#1755918

$119

TurboModem™ PLUS External

- TurboModemPlus External V.32 bis/v.42 bis Data Modem and Fax Unit
- Telephone Cord
- AC Adaptor(115V AC)
- Powerful Data Communications Software
- User Guides

#1733194

$299

The Complete Modem Plus

9600 Baud FAX
2400 Baud Modem

Windows/DOS applications
Background Operation
#1644429

$99.95

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

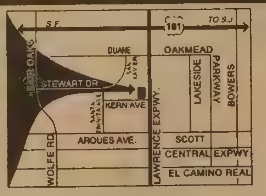
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

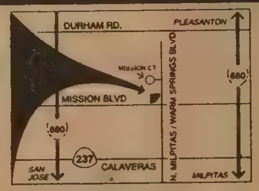
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J
DUANE
OAKMEAD
FAIR OAKS
SAN XAVIER
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE.
SCOTT
CENTRAL EXPWY
LAWRENCE EXPWY.
WOLFE RD.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770

S.F
101
TO S.J
PARK
ASH
OREGON EXPWY
PAGE MILL RD
PORTAGE
LAMBERT
EL CAMINO REAL
S.F
280
TO S.J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT
680
MISSION BLVD
N. MILPITAS / WARM SPRINGS BLVD
880
237
CALAVERAS
SAN JOSE
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

THE TAXMAN COMETH
LET Fry's ELECTRONICS
HELP YOU PREPARE OF APRIL 15TH

CHIPSOFT, Inc.

TurboTax

#1
TurboTax
The Easiest Way to do Your Taxes
Final Version
NEW
EasyStep

1992 FEDERAL 1040 FINAL EDITION

Discover the New EasyStep- System.

Introducing EasyStep., a revolutional new tax preparation system that leads you through your tax return from start to finish... guides you every step of the way... and completes the return for you automatically. More than just an interview or tutorial, EasyStep is a whole new way to do your taxes.
And only TurboTax has it.
#1762918

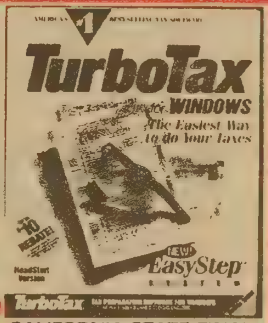
$39.95

CALIFORNIA STATE FINAL
#1765209

$27.95

CHIPSOFT, Inc.

TurboTax


#1
TurboTax
WINDOWS
The Easiest Way to do Your Taxes
NEW
EasyStep
HeadStart Version
TurboTax

1040 FINAL TAX FEDERAL VERSION FOR WINDOWS

Discover the New EasyStep- System.

Turbo Tax gives you complete control over completing your tax return. It handles all the boring, difficult complications and makes sure they're done right. On-line tax help will explain IRS rules for you.
#1763665

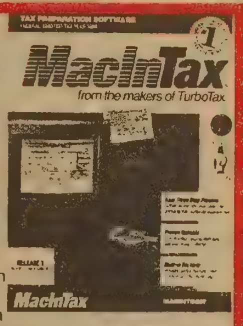
$42.95

CALIFORNIA STATE FINAL
#1765210

$27.95

CHIPSOFT, Inc.

MacInTax.


TAX PREPARATION SOFTWARE
MacInTax
from the makers of TurboTax.
MacInTax

FEDERAL 1040 1992 FINAL EDITION

MacInTax gives you total control over completing your tax return. It's convenient status bar lets you click on a button and jump right to the tax help you need. It Imports figures from Quicken, and other financial software packages. It's System 7 compatible and includes balloon help.
MAC
#1763872

$42.95

TurboTax & Quicken

FINAL EDITION

TurboTax
Quicken
Quicken

TURBO TAX PERSONAL/1040

Version 8.0
#1 Best-selling, award-winning tax preparation software
The industry's most comprehensive on-line assistance
Tax help and savings suggestions
Audit flags and IRS norms
Tax Preparation for 1992
Tax Planning for 1993

QUICKEN

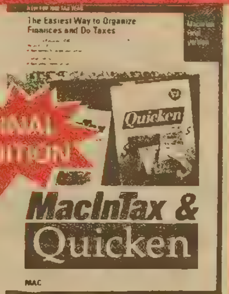
New Version 4.0
#1 Best selling, award-winning financial software
Check Writing/Bill Paying • Budgeting • Bookkeeping
Tax Recordkeeping • Financial Reporting • Investment Tracking
#1488799

CHIPSOFT, Inc.

$59.95

MacInTax & Quicken

FINAL EDITION


The Easiest Way to Organize Finances and Do Taxes
Quicken
MacInTax &
Quicken
MAC

MacInTax FEDERAL 1040 1992 FINAL EDITION

MacInTax gives you total control over completing your tax return. It's convenient status bar lets you click on a button and jump right to the tax help you need. It Imports figures from Quicken, and other financial software packages. It's System 7 compatible and includes balloon help.

QUICKEN

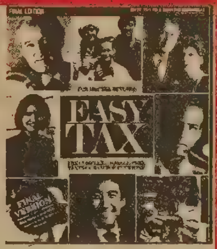
New Version 3.0
#1 Best selling, award-winning financial software
Check Writing/Bill Paying • Budgeting • Bookkeeping
Tax Recordkeeping • Financial Reporting • Investment Tracking
#1768729

CHIPSOFT, Inc.

$59.95

Softkey

EASY TAX

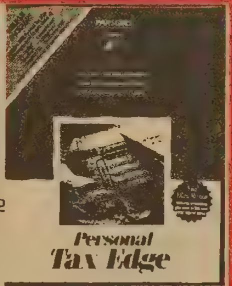

FINAL EDITION
EASY TAX
FINAL VERSION

Easy tax is the most help you can get out of your PC at tax time. Prompts you for the right information, guides you with built-in strategies, and computes your taxes accurately.
#1660786

$29.95

PARSONS TECHNOLOGY

PERSONAL TAX EDGE


PARSONS
Personal Tax Edge

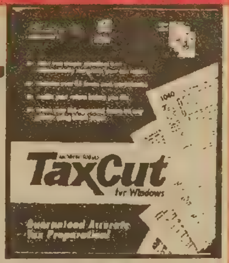
Personal Tax Edge includes everything you need to plan for and file your 1992 federal taxes.
Some of the features include:
- Online Tax Instructions
- Online Tax tips and Saving Suggestions
- Online Audits
- All commonly used Forms and Schedules

5.25"
#1661396

$34.95

meca®

Andrew Tobias' TAX CUT FOR WINDOWS


1040
TaxCut
for Windows
Guaranteed Accurate Tax Preparation!

The only expert system for managing your taxes!
Tax Cut lets you prepare an IRS-approved, expert-quality tax return right on your PC, even if you are a tax or computer novice. This tax season, let you computer do the work.
IBM
#1748974

$44.95

Home of Fast, Friendly, Courteous Service

Fry's ELECTRONICS

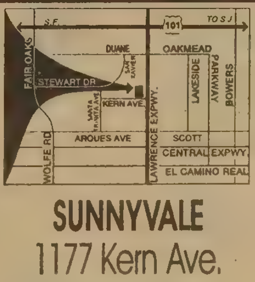
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typographical Errors

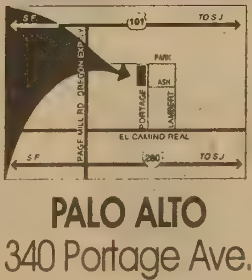
HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA MasterCard
VISA AND MASTERCARD

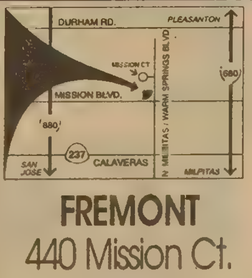
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
OAKMEAD
STEWART DR.
KERN AVE.
LAKESIDE
PARKWAY
BOWERS
ARQUES AVE
LAWRENCE EXPWY.
SCOTT
CENTRAL EXPWY.
WOLFE RD.
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
PAGE MILL RD. OREGON EXPY.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

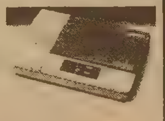
PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
WARM SPRINGS BLVD.
680
MISSION BLVD.
880
237
CALAVERAS
SAN JOSE
N. MILPITAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

YOUR BEST PANASONIC BUYS ARE ALWAYS AT FRY'S

ANSWERING MACHINES

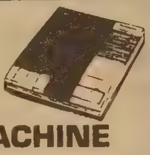


Panasonic
ANSWERING MACHINE

Answering system with Auto-Logic Operation, Tone Remote Control, Digital Display, Message Memo Recording and Remote turn on, Auto-Logic Operation Automatically Rewinds, Plays Messages, Stops at the Last Message and Resets itself at the Touch of One Button.

$\$39^{95}$

MODEL
KX-T1000
#1498194

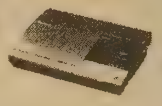


Panasonic
BEEPERLESS REMOTE ANSWERING MACHINE

This compact answering machine is perfect for just about anybody. Fully featured, you can retrieve your messages from any tone phone. Plus, with Panasonic's Auto-Logic operation you can hear your messages with the touch of a button. Other features include auto-interrupt, 12-function tone remote control memory playback and call screening.

$\$59^{95}$

MODEL
KX-T1451
#1731697



Panasonic
DUAL MICRO CASSETTE ANSWERING SYSTEM

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

$\$69^{95}$

MODEL
KX-T2100
#1740208

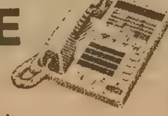
Panasonic
DUAL MICRO CASSETTE ANSWERING SYSTEM
W/ VOICE TIME/DAY STAMP

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

$\$89^{95}$

MODEL
KX-T2300
#1740219

BUSINESS PHONES



Panasonic
TWO LINE PHONE

A two line phone doesn't have to cost a fortune. Panasonic has the low cost answer for you. This unit has a convenient auto dialer, conference calling and much more!

$\$49^{95}$

MODEL
KX-T3110
#1505313

Panasonic
TWO LINE SPEAKERPHONE

A perfect compliment to your home or office, this two-line speakerphone comes equipped with 3-way conferencing, 20 number programmability, separate ring switches for each line, and a local mode function. Now only...

$\$69^{95}$

MODEL
KX-T3120
#1510676

Panasonic
2-LINE SPEAKERPHONE W/ LCD DISPLAY

From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only....

$\$89^{95}$

MODEL
KX-T3175
#1745122

Panasonic
3-LINE SPEAKERPHONE W/ LCD DISPLAY

From Panasonic comes this fully featured 3-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 48-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only....

$\$159^{95}$

MODEL
KX-T3185
#1768039

CORDLESS PHONES

Panasonic
CORDLESS TELEPHONE
W/ ONE-TOUCH REDIAL

If you're in the market for a cordless phone, it doesn't have to cost you a fortune! This new model has 7 day standby, a retractable flexible antenna and handset paging.
In stock now...

$\$59^{95}$

MODEL
KX-T3620
#1511378

Panasonic
10-CHANNEL AUTO SCAN CORDLESS PHONE

Panasonic's newest cordless phone comes equipped with a retractable antenna, flexible rubber antenna, sound charger technology, which helps filter out background noise resulting in enhanced sound quality, and 1-way paging between the base and handset. An excellent value at only...

$\$79^{95}$

MODEL
KX-T3850
#1764839

Panasonic
10-CHANNEL CORDLESS PHONE
W/ INTERCOM

Panasonic's Advanced Sound Charger technology and 10-channel access sharpens mobile sound quality! This unit has enhanced battery standby life, automatic intercom, 2-way paging, a 10-number memory and last number redial.

$\$99^{95}$

MODEL
KX-T3720
#1511390

Panasonic
10-CHANNEL AUTO SCAN CORDLESS PHONE
W/ LIGHTED KEYPAD

Panasonic's newest cordless phone comes equipped with a retractable flexible rubber antenna, sound charger technology, which helps filter out background noise resulting in enhanced sound quality, and 1-way paging between the base and handset. An excellent value at only...

$\$99^{95}$

MODEL
KX-T3855
#1768040

CORDLESS SPEAKER PHONES

Panasonic
10-CHANNEL CORDLESS SPEAKERPHONE

Panasonic's Advanced Sound Charger technology and 10-channel access sharpens mobile sound quality! This unit has enhanced battery standby life, automatic intercom, 2-way paging, a 10-number memory and last number redial.

$\$109^{95}$

MODEL
KX-T3730
#1511404

Panasonic
10 CHANNEL CORDLESS SPEAKERPHONE
WITH LCD DISPLAY

The LCD on the handset shows the channel number dialed, out-of-range-alert, call duration and more! There's also 10-channel remote change with autoscanning which automatically scans for a clear channel while in the standby mode or in the base unit! Now only...

$\$148^{95}$

MODEL
KX-T3860
#1652372

Panasonic
2-LINE 10 CHANNEL CORDLESS PHONE
WITH SPEAKERPHONE

The KX-T3980 is one of the most versatile phones Panasonic has ever developed! When you combine the convenience of a 2-line cordless phone with the flexibility of a 2-line capability along with speaker phone, 3-way conference, 2-way page, and auto intercom, it all adds up to a value too good to pass up!

$\$189^{95}$

MODEL
KX-T3980
#1671595

Panasonic
THE WORLD'S BEST CORDLESS TELEPHONE PANASONIC 900MHz

It's simply Incredible! Take this phone down the street to your neighbors for a barbeque and you will think you were calling from your own backyard! But that's not all! It's also the ultimate cordless phone for small businesses that can't afford to have anything interfere with an important call! Besides the advantages of mobility and clarity, this model has an impressive list of features including, intercom with 2-way paging, 30 channel auto scanning, auto speed dialer, private digital security and much much more! Now only...

$\$349$

MODEL
KX-T9000
#1677122

Home of Fast, Friendly, Courteous Service

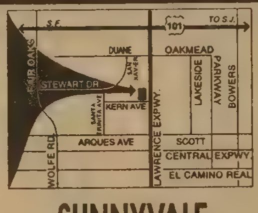
FRY'S ELECTRONICS

Prices good through March 29, 1993

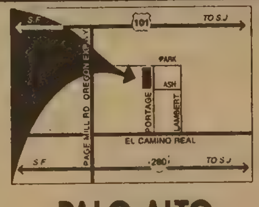
Limit Rights Reserved
Not Responsible For
Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

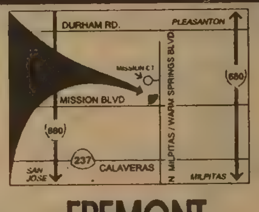
VISA AND MASTERCARD



SUNNYVALE
1177 Kern Ave.
(408) 733-1770



PALO ALTO
340 Portage Ave.
(415) 496-6000



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)

CORPORATE P.O. FAX # (408)735-6800 (415) 496-6060 (510) 770-3700

THINK FRY'S FIRST FOR HOME OFFICE SELECTION AND SAVINGS

BUSINESS PHONES DIGITAL DIARY CELLULAR FAX

GENERAL ELECTRIC
GE We bring good things to life

TWO-LINE TELEPHONE

This ingenious telephone uses dual ringers with distinct ringer sounds and separate ringer controls for each line! By pressing the conference button you will be able to conduct a three way conversation. An excellent value at only...

$39.95

MODEL
GE 2-9420
#1674288

CASIO

DIGITAL DIARY

Why carry around a calendar and schedule book, telephone directory and notebook, when you can do it all and more with this new digital diary from Casio. Optional PC and Mac links also available.

$59.95

MODEL
SF-4300
#1647189

MOTOROLA

CELLULAR TOTE PHONE

This new addition to the Motorola family of cellular phones offer 30 number memory and 3 full watts of power for only...

Authorized
GTE Mobilnet
Sales Representatives
Mr Rescue™ service
Ask for more details

$199.95

MODEL S-3230
#1751866

Service Activation not required. Limit 1 per customer. No sales to dealers or resellers.

NORTHWESTERN BELL

FAX MACHINE

W/16 LEVEL GREY SCALE

Northwestern Bell's feature packed Fax Machine offers a 5 page document feeder, 100 speed dial locations, 16 level grey scale, on-hook dialing, fax auto redial, transmission report slip, active report, handset volume control, last number redial and much more, now only...

$289

MODEL
FAXLINE 620
#1744796

AT&T

2-LINE PHONE

Get outstanding AT&T quality in a 2-line phone now for less! This unit has 3-way conference calling, automatic dialing and much more.

$59.95

MODEL 712
#1548422

CASIO

B.O.S.S. 64K WIDE SCREEN BUSINESS ORGANIZER

This unbelievable value comes equipped with 64KB of memory, with additional memory available, a telephone directory, business card library, calendar, schedule planner,schedule alarm clock w/world time capability, all displayed on a 6 line by 32 character screen! The best value you will find at only...

$119.95

MODEL
SF-9500
#1531167

MOTOROLA

TRANSPORTABLE HANDHELD CELLULAR TELEPHONE

Motorola's most popular Hand Held Phone has all the right features! This compact unit will allow you to talk for up to 90 minutes,keep 30 numbers in memory, and much more!

Authorized
GTE Mobilnet
Sales Representatives
Mr Rescue™ service
Ask for more details

$279

MODEL 8000 HX
#1502549

Service Activation not required Limit 1 per customer. No sales to dealers or resellers.

SHARP

COMPACT FAX MACHINE

WITH AUTOMATIC PAGE FEEDER

If you're in the market for a FAX Machine and you simply want THE BEST, you want SHARP! This hot unit has a 10 Page Feeder,.Halftone and Much More!

$349

MODEL
SHARP FO-130
#1659863

Panasonic

2-LINE SPEAKERPHONE W/ LCD DISPLAY

From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only....

$89.95

MODEL KX-T3175
#1745122

HEWLETT PACKARD
Authorized Dealer

HP-95LX 512K

PALMTOP COMPUTER

This amazing palm top computer has Lotus 1-2-3, Word Processor, Data Base, Appointment Scheduler and 512KMB memory. Truly an incredible product, supply is limited. Get yours now for only...

$379

MODEL
HP95LX-512K
#1584442

MOTOROLA

FLIP PHONE CELLULAR PHONE

This premium value cellular phone from Motorola comes equipped with 30 number memory, LED display, call timer, signal strength meter, a battery with 75 minute total talk time, an overnight charger and a caring case for only...

Authorized
GTE Mobilnet
Sales Representatives
Mr Rescue™ service
Ask for more details

$389

MODEL DPC-550
#1635999

Service Activation not required. Limit 1 per customer No sales to dealers or resellers.

brother

FAX MACHINE W/ PAPER CUTTER & 256K MEMORY

Besides the newly developed therma plus technology, this fax machine also includes an anti-curl system to flatten paper and prevent curling, smoothing, multiple resolution transmission, super cover page for preprogrammed and programmable messages, enhanced remote activation for transfering a fax call from any phone extension, 10 page document feeder, 45 station memory, 16 level gray scale, 256K memory (for up to 15 pages of out reception), all this for only...

$468

MODEL
FAXLINE 650
#1705740

Southwestern Bell Freedom Phone

SELF-INSTALLABLE 4-LINE BUSINESS SYSTEM

This multi-functional 4-line business system is the perfect complement to your already existing system. With features that include speakerphone, conference calling, intercom and call waiting, you can't afford to be without one! Now only...

$119.95

MODEL
FT-412
#1505151

SHARP

256K PERSONAL ORGANIZER

W/TOUCH SCREEN TECHNOLOGY

This Sharp Wizard lets you leave your portable computer at home but puts the power of that computer in your pocket! Here's a small sampling of the innovative features. Touch screen technology which allows you to write or draw on the screen using the Wizard pen, filer which organizes related data into folders that can be transferred to another touch screen Wizard Via infared, and it's true word processer with a large screen display and a keyboard thats 75% the size of a standard PC keyboard. The possibilities are endless at only...

$498

MODEL OZ-9600
#1741782

MOTOROLA

MICROTACLITE CELLULAR PHONE

Weighing in at 7.7 ounces and measuring 11.6 cubic inches, this is the lightest and most advanced cellular telephone available. With 100 alpha numeric memory, retractable antena, standard battery, carrying case with handstrap, belt clip, and rapid charger, you can receive state of the art performance and design for only...

Authorized
GTE Mobilnet
Sales Representatives
Mr Rescue™ service
Ask for more details

$779

MODEL MICROTACLITE
#1705832

Service Activation not required.-Limit 1 per customer. No sales to dealers or resellers

HEWLETT PACKARD
Authorized Dealer

LaserJet FAX

Connects to your HP LaserJet and Personal Computer for plain-paper, Laser-quality FAX reception! Send and Receive off the LaserJet FAX or your computer for printed pages, artwork, photos and Floor plans at 300 DPI resolution!

$897

MODEL
LASER JET FAX
#1689529

Fry's ELECTRONICS

Home of Fast, Friendly , Courteous Service

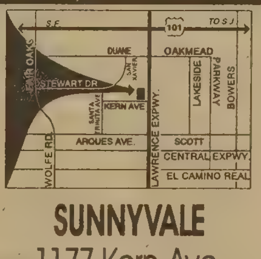
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For Typographical Errors

HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

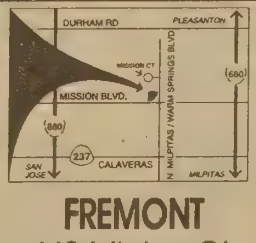
CORPORATE P.O. FAX # (408)735-6800



SUNNYVALE
1177 Kern Ave.
(408) 733-1770

S.F.
101
TO S J
OREGON EXPWY
PAGE MILL RD
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S F
280
TO S J

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060



FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

HOME OF FAST, FRIENDLY, COURTEOUS SERVICE

Fry's ELECTRONICS

SUNNYVALE
1177 KERN AVE.
(408) 733-1770
Corporate PO Fax # (408) 735-6800

FREMONT
440 MISSION CT.
(510) 770-FRYS (3797)
(510) 770-3700

PALO ALTO
340 PORTAGE AVE. (415) 496-6000
Corporate PO Fax # (415) 496-6060

Prices good through April 7, 1992

Limit Rights Reserved
Not Responsible For
Typographical Errors

DIPPS

256 X 1 #38133	**100ns**	**$1.99**
256 X 1 #65333	**80ns**	**$1.99**
256 X 1 #1496066	**70ns**	**$2.09**
256 X 1 #1444807	**60ns**	**$2.19**
256 X 4 #1599613	**70ns**	**$4.99**
64 X 4 #1465642	**80ns**	**$2.29**
1MB X 1 #1444003.	**80ns**	**$3.99**
1MB X 1 #1480919	**70ns**	**$4.49**
1MB X 1 #1637935	**60ns**	**$4.59**

72 PIN SIMMS

2MB	**512K X 36** #1472745	**80ns**	**$88.88**
4MB	**1MB X 36** #1754102	**80ns**	**$164.99**
	1MB X 36 #1754098	**70ns**	**$169.99**
	1MB X 36 #1754087	**60ns**	**$184.99**
8MB	**2MB X 36** #1754124	**80ns**	**$329.99**
	2MB X 36 #1754113	**70ns**	**$339.99**
16MB	**4MB X 36** #1754157	**80ns**	**$659.99**
	4MB X 36 #1754146	**70ns**	**$679.99**

FRY'S ELECTRONICS IS YOUR MEMORY HEADQUARTERS

MEMORY UPGRADES FOR APPLE POWERBOOKS

MODELS 140, 145, 170	**4MB** #1698417	**$199.99**
	6MB #1698428	**$239.99**
MODELS 160/180	**4MB** #1746086	**$239.99**
	6MB #1746101	**$359.99**
	8MB #1746112	**$399.99**
	10MB #1746134	**$629.99**
MODELS DUO 210/230	**4MB** #1748871	**$239.99**
	8MB #1748882	**$399.99**

NEW 32 BIT UPGRADE FOR THE APPLE CENTRIS 610, 650 AND LCIII

4MB X 32 80ns.......$159.99
#1767348

8MB X 32 80ns.......$329.99
#1767382

VIDEO SIMMS

FOR MACINTOSH QUADRA 700, 900 AND 950 COMPUTERS.

256K VIDEO KIT .... $ 99.99
#1748918 QUANTITY- 2

V RAM

FOR MACINTOSH LC AND LCII COMPUTERS.

512K .... $ 99.99
#1748929

MATH CO-PROCESSORS

ULSI SYSTEMS

US 387SX-16,20,25MHz	**$ 69.99**
US 387SX-33MHz	**$ 79.99**
US 387DX-16,20, 25,33MHz	**$ 69.99**
US 387 DX-40MHz	**$ 89.99**

IIT INTEGRATED INFORMATION TECHNOLOGY

2C87-8,10,12MHz	**$ 59.99**
2C87-20MHz	**$ 69.99**
3C87SX-16,20,25MHz	**$ 69.99**
3C87SX-33MHz	**$ 79.99**
3C87-16,20,25MHz	**$ 79.99**
3C87-40MHz	**$ 89.99**

intel® W/ FREE LOTUS ORGANIZER SOFTWARE INSIDE

387DX-16,20,33MHz	**$88.88**
387SX-16,20,25MHz	**$98.99**
387SL	**$98.99**

Cyrix Advancing the Standards

83D87 - 40MHz	**$ 89.99**
83D87 - 33MHz	**$ 79.99**

WEITEK

3167	**33MHz**	**$199.99**
4167	**25MHz**	**$329.99**
4167	**33MHz**	**$649.99**

MACINTOSH

1MB X 8 #1493568	**80ns**	**$29.99**
1MB X 8 #1658600	**70ns**	**$32.99**
2MB X 8 #1722282	**80ns**	**$69.99**
4MB X 8/FX #1530616	**80ns**	**$149.99**

4MB X 8 and 16MB X 8 IN STOCK - ALL STORES

IBM COMPATIBLES

256K X 9 #1299920	**80ns**	**$12.99**
1 MB X 9(3 chip) #1691395	**80ns**	**$31.99**
1 MB X 9(3 chip) #1691384	**70ns**	**$31.99**
1 MB X 9(3 chip) #1691373.	**60ns**	**$34.99**
1 MB X 9(9 chip) #1436367	**80ns**	**$32.99**

4MB X 9 IN STOCK - ALL STORES

HOME OF FAST, FRIENDLY, COURTEOUS SERVICE

FRY'S ELECTRONICS

SUNNYVALE
1177 KERN AVE.
(408) 733-1770
Corporate PO Fax # (408) 735-6800

FREMONT
440 MISSION CT.
(510) 770-FRYS (3797)
(510) 770-3700

PALO ALTO
340 PORTAGE AVE. (415) 496-6000
Corporate PO Fax # (415) 496-6060

Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

50 DRAWER STORAGE CABINET

- See-through drawers
- Stackable frames
- Recessed traytop
- Pedestal Base
- Keyhole hanging slots
- Grey pebble grain finish

$11.99

MODEL 10-350
#1541399

19" TOOL BOX

This tough, solid polypropylene tool box is the competitively priced workhorse of our Red Line consumer models. The handsome red textured finish won't chip, crack, rust or corrode. Features include: Sure-lock metal latches, deep main storage compartment, full interlocking hinges, padlock eye, and convenient lift-out tray. Storage capacity is 1180 cubic inches. Measures 19" w. by 9 1/2" d. by 8 1/2" h.

Model 09-919
#1745823

$13.99

AKRO-MILS

16" TOOL BOX

Light weight, strong tool box with ample storage. Lift out tray, padlock eye Lid features a dust and moisture barrier design. 16" x 8" x 7"

$11.99

MODEL 09-916
#1563412

60 DRAWER STORAGE CABINET

See-thru drawers
Stackable frames
Recessed tray top
Pedestal base • Keyhold Hanging slots
Grey pebble grain finish

$13.99

Model 10-460 #1497148

MAC POWERBOOK BATTERIES

REPLACEMENT BATTERIES FOR YOUR MAC POWERBOOK 140/145/160/170/180
WE ALSO HAVE CHARGERS AVAILABLE

LT-141-0 **$89.99**
#1747803 BATTERY.........................

LTCC-141 **$24.99**
#1748066 CHARGER & CONDITIONER
MUST BE USED WITH UCB110

UCB-110 **$74.99**
#1748491 BASE FOR LTCC141.................

WE ALSO CARRY REPLACEMENT BATTERIES FOR TOSHIBA, ZENITH, EPSON, NEC, HP & MUCH MORE

COMPUTER BATTERIES

WE CARRY ALL SOLUTIONS FOR BATTERY BACK-UP IN YOUR PC'S

TL-5293
6v AT PACK **$11.49**
#1484865

TL-5283
3.6v Compaq **$10.99**
#1505324

TL-5293
3.6v Ast/Everex **$8.99**
#1484832

CORDLESS TELEPHONE BATTERIES

REPLACEMENTS FOR SONY, PANASONIC, G.E., UNIDEN, SOUTHWESTERN BELL, & MANY OTHER MAJOR BRANDS IN STOCK

FB-11C2 **$11.99**
#1561878

FB-13C3 **$17.99**
#1561915

FB-15C3 **$11.29**
#1561737

CALMARK
CORPORATION

CPU COOLER

The series 350 cooling assembly combines forced air with the thermal dissipation properties of a low profile heat-sink to greatly enhance the performance and reliability of the Intel 486 CPU's. The 40mm square x 18.5mm high series 350 will hold the chip case temperature rise (above ambient) to between 1.6°C and 1.8°C. All assemblies come with thermally conductive tape and connectors for ease of installation.

$29.99

#1749399

FRANZUS
WORLDWIDE TRAVEL PRODUCTS

FRANZUS™ CONVERTER

Designed to convert 220/240 voltage to standard 110/120 voltage for appliances up to 50 watts.

$13.99

F-11
#65680

DELUXE INTERNATIONAL ELECTRICITY DUAL CONVERTER AND ADAPTER SET

1650 WATTS
FR1650E #163274

REG. PRICE
$38.99

NOW **$29.99**

QUALITY SPEAKER WIRE

IDEAL FOR 1st LEVEL WIRING OF ELECTRONICS OR HOME INSTALLING SPEAKERS IN YOUR HOME OR CAR AUDIO SYSTEM

SPW-14-50
14 GAUGE/50FT. **$9.99**
#1706589

SPW-16-50
16 GAUGE/50FT. **$7.49**
#1706534

SPW-18-50
18 GAUGE/50FT. **$3.29**
#1706464

TELEPHONE TALK KIT

Provides capability of building a standard appletalk network for your MAC
Model MF-037
#1640218 DIN 8

$11.99

6 FT IBM PARALLEL PRINTER CABLE

PCA-10002
#1717608

$1.99

RAMSEY ELECTRONIC KITS

RAMSEY ELECTRONIC KITS ARE AMERICAS MOST ECONOMICAL AND EXCITING LINE OF KITS FOR HOBBYISTS, EDUCATORS, CLUB PROJECTS AND RADIO AMATEURS. RAMSEY KITS ARE HANDY EASY TO BUILD, EASY TO USE FUNCTIONAL KITS THAT CAN BE USED ALONE OR AS BUILDING BLOCKSIN LARGER, MORE COMPLEX DESIGNS.

SC-1 SHORTWAVE CONNECTOR **$27.95**
#1743108

TV-6 TV TRANSMITTER **$19.95**
#1743175

VS-1 VOICE ACTIVATED SWITCH **$6.95**
#1743201

LEDU® MAGNIFIER LAMP

22 WATT CIRCLINE FLUORESCENT TUBE
34" ARM CLAMP-ON, 3 DIOPTER LENS.

BLACK
SA41A
#1764046

$89.99

ASSEMBLED ETHERNET CABLES BNC MALE TO BNC MALE

RG58/6 FT. RGN-91001C
#1682935

$3.99

HAKKO 926 SOLDERING STATION

Super quick heat-up coupled with faster thermal recovery, permits high quality soldering at lower tip temperature. Built-in ceramic heater sensor maintains temperature with (±0.5°C ±0.9°F) of the setting. Soldering iron handle is heat-insulated for operator comfort.

REG.
$134.99

$88.88

926MM-V12
#1538898

BK PRECISION
MAXTEC INTERNATIONAL CORP.

3.5 DIGITAL TOOL KIT MULTIMETER
Model 2703A

- Measures voltage, resistance and current
- 0.5% DCV accuracy
- DC current to 10A
- Resistance, 0.1 to 20M
- Diode Test
- Drop resistant case

$38.99

#1701403

BK PRECISION
MAXTEC INTERNATIONAL CORP.

3.5 DIGITAL TOOL KIT MULTIMETER
Model 2704A

DMM,Component tester
- 0.5% DCV accuracy
- DC & AC current to 10A
- Resistance, 0.1 to 20M
- Capacitance to 20uF
- Transistor gain measure(hFE)
- Drop resistant case

#1701414

$59

FLUKE 87 4 1/2 DIGIT TRUE RMS DIGITAL MULTIMETER

19,999 Count high resolution mode, plus 1ms Peak Min/Max Hold.
- Min/Max/Average recording mode w/Min/Max alert
- Frequency, Duty Cycle, & Cap Measurements
- Back-lit display, touch hold, relative modes
- Protective Holster with Flex stand
- Made in USA
- 3 Year Warranty

$325

#1440238

Buying A "Killer" Personal Computer For Under $2000

One Consultant's Advice

BY BILL DARDEN

This is an article on how to buy a "killer" PC, what to look for, and how not to waste your hard-earned money. I am assuming that you probably use a personal computer at work and are interested in buying one for home use or upgrading a machine you already have.

Let me start by saying that if you are indecisive or waiting for the latest and greatest technology, buying a PC will be one of the most frustrating things you will ever do. Aside from the ease-of-use, flexibility, reliability, and cost/performance issues, buying a PC requires quite a few other decisions. Also, the technology half-life of PCs is running about six months, so by the time a manufacturer gets a product on the market it is already out of date.

This article will give you some suggestions as to where to find the best buys, what the trade-offs are, and possible configurations in various price ranges all for under $2000.

KNOW WHAT YOU'RE GOING TO USE IT FOR

Most users pick the iron (hardware) before they choose the applications (software) they plan to use it for. If you have the luxury of knowing what you plan to use the PC for, you're definitely ahead of the game.

For example, word processing is *not* CPU (Central Processing Unit) intensive; however, having a large and fast hard disk, high-resolution monitor, good keyboard, and letter-quality printer are highly desirable. If you're using the PC for CAD (Computer Aided Design), graphics, or large spreadsheets, you will need a fast CPU, a lot of memory, and a coprocessor in addition to a fast hard disk. A large, high-resolution, Super VGA (Video Graphics Array) color monitor, in this case, would be more important to the CAD or graphics user.

I'll assume that you have chosen an MS-DOS based personal computer system, but please keep in mind that much of the following advice applies equally to the other systems.

There are twelve decision points identified to help you through this process.

DECISION POINT 1: BUNDLED OR UNBUNDLED?

If you're a rookie, you will require a lot of help getting started. I would suggest that you buy a bundled system, i.e., a packaged unit with hardware, software, or support. The only decision is which one to buy and how much to spend.

The major advantage of buying a bundled system is that the manufacturer has preselected hardware (and software) that will work together, and that the vendor is willing to support the entire configuration. In other words, they've made most of the purchasing decisions for you. The disadvantages are: 1) you lose the flexibility of selecting components which can affect long-term reliability or performance; 2) you might have to pay for hardware (or software) you do not need or want; and 3) if you purchased your system from a mail order store, you might have to pack it up and ship it back if you have a problem. Packaged systems are available from discount (Target, K-mart, etc.), mail order (Dell, CompuAdd, Northgate, Zeos, etc.), and specialty (Radio Shack, etc.) stores.

Dell, CompuAdd, Northgate, and Zeos mail order companies have excellent reputations and warrant consideration. Tandy (Radio Shack) or stores selling Packard Bell or IBM (PS/1) are other bundled possibilities. Preconfigured systems with MS-DOS 5.0, Windows 3.1, and a mouse are becoming more popular, mainly due to the complexity of correctly installing this software.

Unbundled or customized systems are those that give you the flexibility of selecting the hardware components (and software) that will be integrated into them. Most vendors will warrant and support these customized systems in the same manner as their packaged systems. The disadvantages of the bundled systems listed above correspond to the advantages of the unbundled ones.

From this point, I'll assume that you are an experienced MS-DOS user, but not to the level of writing your own hardware drivers; therefore, you plan to buy a customized, unbundled system.

DECISION POINT 2: IBM, COMPATIBLE, OR CLONE?

Do I buy the "real thing," a compatible, or a clone? A lot of this decision centers around fear.

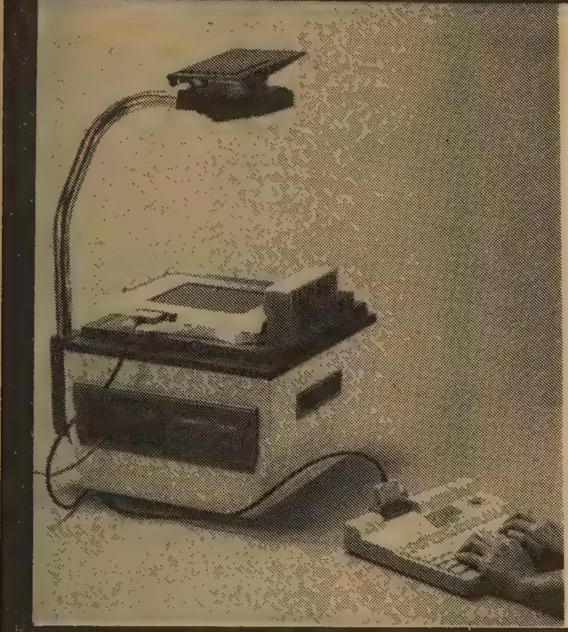
I have heard arguments in favor of buying IBM and paying a premium (up to double the cost of a clone) because of perceived quality, excellent support, and resale value. However, unless you are one of IBM's large commercial customers, direct end-user support from IBM has been almost nonexistent until recently. IBM, like most of the manufacturers in the PC business, buys most of its chips and components from the same suppliers, and has had its fair share of problems and recalls.

Compatibles are systems developed by major companies, e.g., Compaq, Hewlett-Packard, AT&T, DEC, Tandy, etc., that are compatible with software that will run on IBM PCs. One caveat with compatibles is that it's important to avoid buying nonstandard hardware or software which is expensive to replace, maintain, or upgrade. Clones are also compatible with the IBM standard, and are made by hundreds of large and small vendors. They are usually priced at 40–70% of their IBM counterparts, whereas brand-name compatibles are

Copyright© 1993 Darden & Associates

Technoland

We Do Business Your Way!
(408) 524-9188



CRUISER-325 & 433C PROJECTION NOTEBOOK

- Built-In Track Ball
- 80 MB Removable Hard Drive
- 1.44 MB Floppy Drive
- 110/220V 50/60Hz Autoswitch
- DC Powered Cooling System
- 85-Key w/Built-in Numeric Keyboard
- Two Rechargeable Ni-Cad Batteries
- 1 Serial, 1 Parallel Ports
- External Keyboard • VGA CRT Connections
- Deluxe Carrying Bag w/Manuals
- Weight: 5.5 LB
- Optional Built-in FAX/Modem
- Optional LAN, Voice, Scanner Adapter
- Optional IC Card and Digitizer

CRUISER-325

w/640x480 VGA CCFT LCD
180 Degree Adjustable Screen
4 MB Exp. to 8 MB
w/64KB Cache Memory

SPECIAL PRICE . . $2688

CRUISER-433C

256 Color TFT Active Matrix VGA Display
180 Degree Adjustable Screen
8 MB RAM
w/64KB Cache Memory

SPECIAL PRICE . . $6150

PC MAGAZINE June 1992 *"It's a wonder no one did it before." A slideshow created in a presentation graphics package can be projected exactly as it would be displayed on screen. Given the cost of having OHP transparencies made by a bureau, this is very appealing."*

CALL TODAY! FOR MORE DETAILS OR TO ARRANGE A DEMONSTRATION

TECH 486DX/DX2 BASIC SYSTEMS

OPTI Chip-Set, Write-Back Cache, 1 MB RAM, Up to 32 MB, 1.2 MB Floppy Drive, IDE Host Adapter with I/O, 2 Ser/1 Par/1 Game Ports Mid-Tower Case with 200W Power Supply, Enhanced 101 Keyboard

486DX-33/50, 256K	$678/828
486DX2-50/66, 256K	$788/938
LB 486-33/50, 256K	$728/888
LB 486DX2-50/66	$848/998
EISA 486DX-33/50	$878/1028

TECH 386SX/DX BASIC SYSTEMS

1 MB RAM, Up to 32 MB for DX, 8 MB For SX, 1.2 MB Floppy Drive, IDE Host Adapter with I/O 2 Ser/1 Par/1 Game Ports, Mid-Tower Case with 200W Power Supply, Enhanced 101 Keyboard.

386SX-25	$298
386SX-33	308
386DX-33 128K Cache	398
386DX-40 128K Cache	398

OUT OF MEMORY?
Memory Express Service:

- **FREE** In-Shop Installation
- Fast & Friendly Services
- On-Site Service Available
- Includes Notebook & Laptops
- Satisfaction Guaranteed!
- **Call Today!**

1MBx9-80/70NS	$33
4MBx9-80/70NS	$136
16MBx9-70NS	$630
DRAM RAM	CALL

CD-ROM KIT SPECIAL!

MULTIPRO PHOTO STARTER KIT

- Kodak Photo CD Compatible
- Mitsumi CD-ROM 340ms
- Interface Kit
- New Multisession Drive
- Kodak Photo Sampler on CD
- Kodak CD Access Software

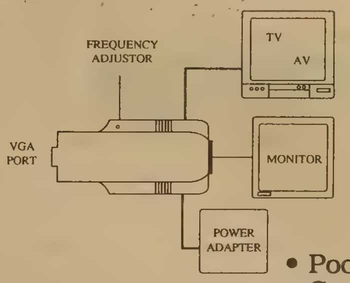
BEST PRICE $339
List Price: $419

CD-ROM UPGRADE KIT

- Includes CD-ROM Starter Kit Shown On The Left PLUS—
- Battle Chess CD Enhancement
- Windows 3.1
- WINDAT
- Monologue Speech Synthesizer
- 8-bit Sound Card
- Speakers
- Jukebox and Sound Tracks
- CD-Player and Soundscript

BEST VALUE $435

PUT YOUR COMPUTER SCREEN ON TV!



Perfect For:

- Business Presentations
- Classroom Presentations
- Laptop Users
- Playing Games On Big Screen
- Computer Based Training

- Pocket Size Adapter
- Converts VGA Signal to NTSC Format
- Recordable Through VCR
- Includes: Software Driver, 120V DC Power Adapter, User's Manual, RCA Video Cable.

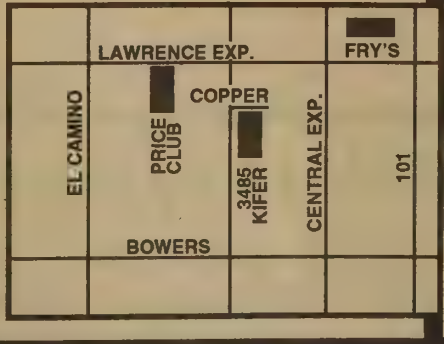
SPECIAL OFFER $149

No Surcharge for Credit Card Purchases

No **Annoying Voice Mail Answering Machines**

Yes We Gladly Accept P.O.'s From Corp., Educ. and Government Accounts

Yes **We Will MEET or BEAT ANY ADVERTISED PRICE!**



COME SEE OUR SHOWROOM!

1 Block Away From Price Club At The Intersection of Kifer and Copper

3485 KIFER ROAD
SANTA CLARA, CA 95051
TEL: (408) 524-9188
Fax: (408) 524-9193
24 HOUR INFORMATION
BY FAX: (408) 524-9195
9 AM - 6 PM MON - FRI
10 AM - 5 PM SAT

VISA master charge

Prices subject to change w/o notice, not responsible for typographic errors

BEST PRICE, BEST QUALITY, BEST SERVICE

486DX2-66 256K VESA Local Bus

- VESA 32 bit VLB Motherboard
- Intel 80486DX2-66MHz CPU
- AMI BIOS
- 4MB RAM 70ns
- 212MB Western Digital 13ms Hard Drive
- TSENG ET4000 w/1MB Hi-Color
- SVGA Monitor 1024x768 0.28 dp
- Teac 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Enhanced Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply

$1858

486DX-33 w/64K VESA Local Bus

- VESA 32 bit VLB Motherboard
- Intel 80486DX-33MHz CPU
- AMI BIOS
- 4MB RAM 70ns
- 130MB Maxtor 15ms Hard Drive
- Trident SVGA w/1MB
- SVGA Monitor 1024x768 0.28 dp
- Teac 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Enhanced Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply

$1238 THIS MONTH ONLY!

386DX-40MHz w/64K CACHE

- AMD 80386DX-40 CPU
- AMI BIOS & Math Co-Socket
- 4MB RAM 70ns
- 130MB Maxtor15ms Hard Drive
- Trident SVGA w/1MB
- SVGA Monitor 1024x768 0.28 dp
- Teac 1.2 & 1.44 Floppy Drive
- IDE 2FD/2HD Controller
- 2 Serial, 1 Parallel, 1 Game
- Mitsumi 101 Enhanced Keyboard
- Deluxe Mini Tower
- 200 Watt Power Supply

$949

ZYXEL 16,800 bps FAX/MODEM U-1496 E

- IBM and Macintosh fully compatible
- External Modem/Fax
- CCITT V.32 bis
- V.22/Bell 212A
- V.21/Bell 103
- V.32 bis 14,400 bps
- V.42 and MNP4 Error Correction
- V.42 and MNP5 Data Compression
- 16,800 bps G3 Fax Send & Receive
- EIA Class II Fax Command Set

$350

Networking Services

- Free Consultation
- Custom Configuration
- Complete Turn Key Solution
- Custom Installation and Cabling
- Network Management
- Complete Technical Support

Networking Products

2 Station Starter Kit $298

- 2 Copies of Novell Lite or LANtastic
- 2 NEC2000 16 bit Ethernet Adaptors
- 2 50 Ohm Cable Terminators
- 1-25 foot cable
- Additional Users $148

ETHERNET CARDS

16 bit NE2000	$67
16 bit NE2000 Twist Pair	67
8 Ports Concentrator	250
16 Ports Concentrator	480

CD ROM & SOUND CARDS

Mitsumi CD-ROM Drive 350ms	$199
Sony CD-ROM Drive 430ms	268
Mitsumi CD-ROM w/5 Topic Software	278
Texel DM-3024 CD-ROM 265ms	395
Toshiba 3401 CD-ROM 200ms	515
NEC CDR-74 CD-ROM	630
NEC CDR-74 CD-ROM Bundle	988
NEC CDR-84 CD-ROM 289ms	558
Creative Labs Sound Blaster Pro	145
Creative Labs Sound Blaster Pro w/MIDI	185
CD Bundle Software Kit	89

VIDEO GRAPHIC CARDS

Mono Graphics Printer Card	$15
VGA w/256K	28
Trident 9000 Super VGA w/512K	38
Trident 8900C SVGA Card w/1MB	54
Tseng ET-4000 w/1MB	72
Tseng ET-4000 w/1MB Hi-Color	82
Diamond Speed Star 24X w/1MB	146
Diamond Stealth VRAM w/1MB	185
Diamond Stealth Local Bus w/1MB	185
Orchid Pro IIS w/1MB Hi-Color	116
Fahrenheit VA 801 w/1MB	149
Fahrenheit VESA Local Bus w/1MB	189
ATI Graphics Ultra w/Mouse	248
ATI Graphics Ultra Pro w/2MB	398
ATI Graphics Ultra Plus	298

MONITORS

Sony CPD 1304S .25 dp	$535
Sony CPD 1604S .25 dp	946
Nanao 9090i 16" 1280x1024 .28 dp	890
Nanao F550i 17" 1280x1024 .28 dp	1020
Nanao F560i 17" 1280x1024 .26 dp	1758
NEC 3FGX 15" SVGA .28 dp	619
NEC 4D 16" SVGA .28 dp	560
NEC 4FG 15" SVGA .28 dp	728
NEC 5FG 17" SVGA .28 dp	1390
MAG 15F 15" 1280x1024 .28dp	555
MAG 17F 17" 1280x1024 .26dp	1099
Viewsonic 4E Super VGA .28	280
Viewsonic 5E 14" Non-Interlaced SVGA	380
Viewsonic 6E 14" Non-Interlaced SVGA	320
Viewsonic 6FS 15" Low Radiation	539
Relisys 15" Flat Screen Non-Interlaced	398
CTX 14" SVGA Non-Interlaced .28 dp	288
14" SVGA .28dp	238

SCANNERS

PAPER FEED

Full Page Scanner w/OCR Gray 300 /Color 3000	$449/649

TAMARAK

Flatbed Full Page Color Scanner Artiscan 300/600/800	849/1099/1499

MARSTEK

Hand Scanners 400 dpi w/OCR	$99
800 dpi DOS ver w/OCR	169
800 dpi Windows ver w/OCR	189

PRINTERS

Canon BJ-200	$365
HP DeskJet 500	385
HP DeskJet 500C	499
HP LaserJet IIP+	785
HP LaserJet IIIP	949
HP LaserJet 4	1399
Panasonic	
KX-P 1123	205
KX-P 1124i	285
KX-P 2123	245
KX-P 2124	320

ADD-ON CARDS

AT I/O (2S/1P/1G)	$15
IDE 2FD/2HD w/(2S/1P/1G)	15
VESA Local Bus IDE 2FD/2HD, 2S/1P/1G	89
Future Domain SCSI 2FD/2HD Controller	58
Adaptec SCSI 1522K/1542BK w/Kit	158/245
Adaptec 1742 BK w/Kit SCSI EISA Controller	468
Trackball (800dpi)	35
Microsoft Compatible Serial Mouse	14
PS/2 Compatible Serial Mouse	18
Logitech Serial/Bus Mouse Man	61/61
Logitech Trackman	75

DRIVES

Teac 1.44/1.2MB Floppy Drive	$50/53
Colorado Tape Backup 120MB/250MB	178/228
Maxtor 130MB 15ms IDE	228
W.D. 212MB 13ms IDE	328
Maxtor 200MB 16ms SCSI	495
Maxtor 340MB 15ms IDE/SCSI	575
Toshiba 887MB 12ms SCSI	1095

MODEMS/FAX

Zoltrix	
2400 Int. Modem	$32
9600/2400 Fax/Modem	54
9600/2400 Fax/Modem w/Bit Fax for Windows	58
9600/2400 Pocket Fax Modem	118
9600 bps Int Fax/Modem	185
14,400 bps Ext. Modem	245
14,400 bps Int. Fax/Modem	195
Zyxel 16,800 bps Fax/Modem (external, IBM, MAC)	350

microsystems

World-Net Microsystems, Inc.

(510) 770-1158 Fax (510) 770-1159
43172 Christy St. • Fremont, CA 94538
Hours M-F 9-6 Sat 10:30-4

priced to compete with IBM and are usually "me too less 20%."

With more competition as the PC business becomes a commodity market, the price differences are diminishing. I've often found no-name clones more reliable than some of the name-brand machines. Also, I can get more bang for the buck by buying clones.

DECISION POINT 3: WHERE TO BUY?

You now need to decide how much performance you need. This is dictated somewhat by how much you want to spend. I have always had a champagne appetite on a beer budget, so I look for the best price/performance ratio. For used equipment, go to the electronic swap meets or ham radio gatherings. For new systems, I have found the best prices at the computer shows and swap meets. (It should be noted that swap meets are probably not the best source for the novice shopper, but the knowledgeable buyer can find some great deals.)

Then there's the neighborhood computer store, where you have convenience and support, but pay for it. Computer superstores are becoming more popular. Discount stores also sell computers, but rarely offer much in the way of support. Occasionally, these stores will advertise "loss leaders" to stimulate sales, and you can buy bundled systems at a good price. You'll consistently find the best prices where there is a lot of head-to-head competition, e.g., computer shows, swap meets, and areas with a high concentration of manufacturers or dealers, i.e., Silicon Valley or City of Industry.

DECISION POINT 4: ARCHITECTURE

Should you buy a 286 (AT), 386SX, 386DX, 486SX, 486DX2, or 486DX (in order of processing power and cost)?

A 12MHz 286 is considered by many to be the minimum entry point into personal computing. For word processing and other non-CPU intensive applications, there is not much perceived difference between a 286/12 and a 486DX/33. At best, the 486 would save you ten minutes per day.

At the end of this article, there is a detailed cost comparison of five sample "killer" PCs costing under $2000, using the prices found by carefully shopping the computer shows and swap meets. A word of caution—there is intense competition among the manufacturers, and also frequent changes in government regulations, so supply and demand can change prices radically overnight. If you snooze, you can lose. (The recent increases in RAM prices are an example of this phenomenon.)

A 386SX system can be a better buy and less expensive than a similarly equipped 286, because of the memory expansion costs and future software upgradability. If I were going to buy a new system, I would not buy a new 286-based system. A 386DX/33 costs less and gives about the same performance as the 486SX/25; therefore, it's a better buy, unless the 486SX could be upgraded at a later date.

Spending an extra $10 to $50 can buy you a processor speed upgrade, e.g., 386SX/25 to 386SX/33 or 386DX/33 to 386DX/40. This is generally a good buy unless it will require you to spend more on memory. If you require extra performance, adding a local bus controller, a Cyrix or Intel 387 coprocessor, or CPU cache memory will greatly improve graphics, spreadsheet, and math-intensive applications.

DECISION POINT 5: WHICH MOTHERBOARD?

The motherboard is a printed circuit board containing the CPU and other computer chips, e.g., memory (RAM), cache memory, etc., and other printed circuit (controller) cards plugged into "slots."

You need to be especially aware of the memory configuration. Buy systems that can be upgraded to at least 16MB of memory. You will initially require at least 4MB if you plan to run Windows and 8MB if you plan to run UNIX or OS/2. The motherboard should also have at least two spare slots after you have added all of the controller cards. (Discussions on bus types, BIOS, or motherboard chip set differences are outside the scope of this article.)

Motherboards come in three sizes: Baby-AT, XT, and Full. You will need to ensure that the motherboard will fit in whatever case you buy.

Some manufacturers—e.g. AST and ALR—will argue that you should buy their system with proprietary upgradable CPU modules, so at some later date you only have to change that module to increase performance. This lowers manufacturing costs, but I have found in most cases that the upgrade module can cost more than a new computer. A better approach, recently introduced by some of the clone manufacturers, is a "universal" motherboard that can support a number of different CPU chips with various performance levels (clock speeds). This seems to be a more reasonable approach and potentially a lot less expensive over the life of the system.

DECISION POINT 6: MEMORY

Most systems use 256K, 1MB, or 4MB RAM chips. Avoid the 256K chips, because when you need to upgrade above 2MB you cannot use them. This means that you will need to get at least 2MB (using 1MB chips) with your 386SX or 4MB with a 386DX system, depending on the memory interleaving. (Memory interleaving is a technique for reading and writing memory so that slower and less expensive memory can be used without sacrificing performance.)

Without requiring an expensive memory expansion card, most motherboards will allow a maximum of 8MB using 1MB chips or 32MB using 4MB chips. You will also need to ensure that you purchase the right packaging (SIMMs, SIPPs, or DIPs), speed, type, and size (1, 4, or 16MB) memory for your motherboard. I recommend that you buy your motherboard with memory installed, so there is no question if you have an incompatibility problem.

DECISION POINT 7: CASE

This is mostly a personal choice, but if you plan to have a backup tape drive, a 51/4" (1.2MB) floppy drive and 31/2" (1.44MB) floppy drive, you will need at least three external half-height bays; otherwise, you will be spending more for external drives than is necessary. (Half-height bays measure 5 1/4" wide and 1 11/16" high.) I would suggest that you get at least a 200W UL (Underwriters Laboratory) listed power supply with a quiet fan already installed in the case. The case needs to meet FCC Class B (Commercial) requirements and should have a Reset and Power On/Off Switch, preferably on the front panel. You will need internal space for at least one additional hard disk drive. I highly recommend that you safeguard your investment by buying a surge protector.

DECISION POINT 8: KEYBOARD

Spend an extra $10 to $50 and get a good 101 extended-key KeyTronic or Northgate keyboard. This is your primary human input interface to your PC, and a good investment. The keyboards are available with "click" or "soft touch" keys. This is a matter of personal preference.

DECISION POINT 9: FLOPPY DISK DRIVES

For maximum flexibility, I'd suggest that you get one 1.2MB 5 1/4" floppy as Drive "A" and one 1.44MB 3 1/2" floppy as Drive "B." I have found that the 1.2MB TEAC drives will read and write most 360K floppy disks; whereas other, less expensive brands might not. I am a big fan of TEACs and believe that they are worth the $5 to $10 more per drive it will cost to upgrade the standard low-cost floppy drives that typically come with packaged clones.

Always have at least one 5 1/4" drive on your system, because over 80% of the media used today are 260K and 1.2MB floppies. You would be surprised how often media incompatibility problems will arise, so spending the extra $50 for a 1.44MB 3 1/2" floppy disk drive is quite a time saver.

DECISION POINT 10: HARD DISK

Most packaged systems these days come with a combination floppy and hard disk controller, with one parallel (printer) and two serial (RS-232) ports and at least a 40MB hard drive. If the system has an MFM or RLL 2:1 interleave controller, I would strongly suggest that you upgrade your controller to an IDE, SCSI, ESDI, or 1:1 RLL hard disk/floppy disk controller to improve the performance. I would also suggest that you use a 65MB (or larger) hard drive with a 28 millisecond (or faster) access time. This incremental upgrade can add up to $2.00 per megabyte of storage to the cost of your system, but it is well worth it in terms of reliability and performance.

Disk Interleave affects the speed with which you can access your stored data. A 1:1 interleaved drive will transfer data twice as fast as a 2:1 drive, and so on. IDE drives have faster data transfer rates than RLL or MFM. Access time is a measurement of the average speed to randomly access any data from the drive. The lower the number, measured in milliseconds, the better. In ascending order, MFM, RLL, IDE, SCSI, ESDI, and SCSI-II interfaces give the best performance.

Some vendors are offering 80MB (or larger) IDE drives for their systems. (IDE means Intelligent Drive Electronics, sometimes refered to as "AT Drives," where the hard disk controller functionality is combined with the electronics on the drive.) Buy the largest and fastest hard drive you can afford. I recommend Quantum, Maxtor, Conner, and Seagate. For drives larger than 250MB, I recommend Micropolis, Fujitsu, Maxtor, and Seagate. Avoid drives smaller than 40MB because of the enormous disk requirements of the newer systems and applications software. You will want a low access time and a large disk cache.

DECISION POINT 11: VIDEO ADAPTER AND MONITOR

The monitor is the principal output device on your PC, so choose it carefully.

There are seven types of monitors that are popular on PCs—MGA (Monographics Adapter), CGA (Color Graphics Adapter), EGA (Extended Graphics Adapter), VGA Mono, VGA, and SVGA in ascending order of quality and cost. If you want color, I'd recommend that you buy at least a 14" VGA monitor with at least .31mm dot size or smaller. The TTL mono monitor and graphics (MGA) card will run less than $100; and the high-end 14" Non-Interlaced NEC, Sony, or Seiko and

WIT...THE LAST WORD IN HIGH PERFORMANCE SYSTEMS!!

AOpen EISA 486 LXE Serial
(6 EISA Bus Slots, Plus 1 VESA Local Bus Slot)

486DX2-66/DX2-50	$1930/$1810
486-DX-50/DX-33	$1800/$1650

AOpen ISA 486 GXi Serial

486DX2-66/DX-50	$1690/$1560
486DX-50/DX-33	$1600/$1450
486SX-33/SX-25	$1340/$1320

AOpen ISA 486 GLi Serial

486-Cyrix DLC-40/DLC-33	$1380/$1290

Acer Open
Systems Division... AOpen

The Perfect Combination...Cutting-Edge Technology and Affordability!
These Great Systems Include:

- A-Open 486 Motherboard exp up to 32 MB
- 4 MB RAM w/256K Cache
- Teac 1.2 and 1.44 MB Floppy Drives
- Conner or Maxtor 130 MB IDE Hard Drive
- IDE 2FD/2HD Controller w/2 S/1P/1G Ports
- Windows Accelerator Video Card w/1 MB (For EISA, Use Orchid, Diamond or Genoa VLB Card)
- AcerView 34T, 14" SVGA .28dp, NI Monitor
- AcerTouch 32G, 101 Key Keyboard
- Acer BD24, Exclusive Mid-Tower/Full Desktop Dual Case
- 250W Power Supply
- MS-DOS 5.0/Windows 3.1/Serial Mouse
- 72 Hours Burn-In and Fully Tested

WIT High Performance Systems

WIT VESA 486DX2-66/DX2-50 w/256K Cache	$1620/$1500
WIT VESA 486DX-50/DX-33 w/256K Cache	$1530/$1400
WIT ISA 486DX2-66/DX2-50 w/256K Cache	$1490/$1380
WIT ISA 486DX-50/DX-33 w/256K Cache	$1410/$1270
WIT ISA 486SX-33/SX-25 w/256K Cache	$1090/$1070
WIT 386DX-40/DX-33 w/128K Cache	$ 990/$ 988
WIT 386SX-33/SX-25	$ 940/$ 930

- 4 MB RAM
- 1.2MB & 1.44 MB Floppy Drives
- 120 MB Hard Drive
- IDE FDD/HDD Controller
- 2 Serial/1 Parallel/1 Game Port
- Mini-Tower Case w/230W Power Supply
- 101-K Keyboard
- Windows Accelerator SVGA w/1 MB
- 14" SVGA Non-Interlaced .28 dp Monitor
- 72 Hour Burn-In & Fully Tested (Note VESA Local Bus Comes With 32-Bit VLB & 32-Bit VLB SVGA)

Enhance Your System's Capabilities...

NOTEBOOK

386-25SL VGA Mono	$1255
486-25SLC VGA Mono	$1600
VGA-Color	$2250

Systems Include:

- 2 MB RAM, 60 MB HDD
- 1.44MB 3.5" FDD
- Color VGA LCD 640 x 480 Res, 9" diagonal
- Paper White VGA 10" LCD 640 x 480, 64 Gray Scale
- Ext VGA Port
- Connector for Docking Station
- 1 Par/1 Ser
- Dual Ni-CAD Batteries and Adapter
- MS-DOS 5.0
- 8.5"x11"x1.73" Only 5.7 Lbs
- Carrying Case
- Built-In 2-Button Trackball

NOTEBOOK UPGRADES:

80/120 MB Hard Drive	Add $70/$190
FAX Modem	Add $170
Memory Per MB	Add $50

SYSTEM OPTIONS:

Upgrades:	Add To System Price
170 MB HD	$50
210 MB HD	$100
250 MB HD	$150
340 MB HD	$300
535 MB HD	$600
ViewSonic 15"	$280
MAG 15"	$290
NEC 3FGX	$350
Diamond Stealth	$175
Diamond 24X	$100
Additions:	
1 MB RAM (each)	$35
One Floppy Drive	$55

2400 BD Modem	$38
96/24 Fax Modem	$56
14400 Fax Modem	$225
CPU Fan	$19
3 Button Serial Mouse	$13

Downgrades:	Subtract From System Price
100 MB HD	$15
80 MB HD	$25
60 MB HD	$35
40 MB HD	$50
14" SVGA .39 dp	$38
14" SVGA .28 dp Interlaced	$20

COMMITMENT TO SERVE YOU:
- 30 Day Money-Back Guarantee
- NO Restocking Charge
- 1 Years Parts/Lifetime Labor Warranty
- Customized Systems
- Government P.O.'s Welcome

ALL AROUND SATISFACTION:
Stanford University, UC Berkeley, IBM,
United Postal Service, Lockheed
General Electric, AT&T,
Quantum, Conner

WIT
(408) 433-0188
Fax: (408) 433-0318 • Tech Support (408) 433-0709
Wang International Trade, Inc.
2073 O'TOOLE AVE.,
SAN JOSE, CA 95131

HOURS:
Mon-Fri: 8-5:30pm
Saturday: 10-3

880
O'Toole
Charcot
Brokaw
101
Montague

Prices Subject to Change w/o Notice
30 Day Money Back Guarantee only for products that are incompatible with your software, shipping costs non-refundable

Listen To What The Experts Said About Our Systems

*"The **best** at combining price and performance"* - **PC Magazine** 2/93 on 486DX/33 Local Bus system
"A decent, low cost product that includes a few advanced components" - **PC Magazine** 1/93 on 486DX2/66 system
"Good component mix in its small foot-print case" - **PC Magazine** 10/92 on ISA 486SX/25 system
"There's no reason you shouldn't take advantage of this opportunity" **PC Magazine** 4/91 on EISA 486DX/33

Call Now!
(408)956-8373

Why VESA Local Bus?

The great advantage in having a VESA Local Bus (VL-bus) system can be summed up in two key words: **performance** and **standard**.

The VESA Local Bus provides a 32-bit bus running at the CPU speed (up to 50Mhz at present technology) instead of the standard 8.33Mhz ISA bus speed. Now the dramatic results are overwhelming and you will see up to **25 times** increase in performance in both video and hard disk access.

And yet it is an industry standard which means your investment will be preserved, and you can take advantage of all the new VESA add-on cards available in the market today and in the future!

VESA Local Bus Systems

- ☐ **VESA 486 Local Bus** motherboard
- ☐ True **50Mhz** system design
- ☐ **Two (2) VESA Local Bus slots (support VESA bus mastering)**
- ☐ 128KB cache (256KB optional)
- ☐ **Intel** 80486 CPU
- ☐ 4MB 70ns main memory installed
- ☐ 170MB 13ms IDE hard drive
- ☐ Both 1.2 & 1.44 **TEAC** floppy drives
- ☐ 1:1 2HD/2FD IDE controller
- ☐ 2 serial/1 parallel/1 game ports
- ☐ **Genoa 32-bit VL-Bus Graphics Accelerator SVGA w/ 1MB**
- ☐ 14" .28mm SVGA color monitor
- ☐ 101-key enhanced keyboard
- ☐ Desktop case with power supply

486DX2-66/50 $1,619/1,479
486DX-50/33 $1,509/1,355
486SX-33/25 $1,250/1,215

VESA System Upgrade Options	Add
DTC VL-bus IDE controller	$85
VL-bus IDE controller w/1MB cache	$230
VL-bus SCSI host adapter and SCSI drive	CALL
Diamond Stealth 24VLX VL-bus SVGA	$58
ATI Ultra VL-bus SVGA adapter w/2MB	$298
14" flicker-free SVGA monitor (NI, VESA)	$45
15" flicker free non-interlaced .28mm Super VGA monitor (VESA)	$130
17" KFC .26mm SVGA monitor (VESA)	$650
200MB/250MB IDE hard drive	$55/100
340MB/535MB IDE hard drive	$210/625

On-site Warranty Available for All Systems

P.S. #1 Sellers

- ☐ ISA motherboard with 64K cache
- ☐ **Intel** 80486 CPU for 486 systems
- ☐ 4MB 70ns main memory installed
- ☐ 130MB IDE hard drive
- ☐ Both 1.2 & 1.44 **TEAC** floppy drives
- ☐ 1:1 2HD/2FD IDE controller
- ☐ 2 serial/1 parallel/1 game ports
- ☐ 101-key enhanced keyboard
- ☐ 14" SVGA .28 DP color monitor
- ☐ Super VGA card with 512KB
- ☐ Mini tower case with power supply

486DX2-66/50 $1,445/1,325
486DX-50/33 $1,369/1,219
486SX-33/25 $1,110/1,098
386DX-40/33 $960/958

Super VGA with 1MB	Add $20
170MB IDE drive (13ms)	Add $45
200MB IDE drive (15ms)	Add $95
250MB IDE drive (13ms)	Add $145

P.S. Econo Systems

- ☐ ISA motherboard (128K cache for Cyrix 486, 64K for 386DX-40/33)
- ☐ 2MB main memory installed
- ☐ 40MB IDE hard drive
- ☐ 1.2 or 1.44MB **TEAC** floppy drive
- ☐ 1:1 2HD/2FD IDE controller
- ☐ 2 serial/1 parallel/1 game ports
- ☐ 101-key enhanced keyboard
- ☐ 14" SVGA .39 DP color monitor
- ☐ Super VGA card with 512KB
- ☐ Mini tower case with power supply

Cyrix 486DXL-33 $888
486SX-33/25 $896/875
386DX-40/33 $747/745
386SX-33 $680

Super VGA with 1MB	Add $20
14" .28DP SVGA monitor	Add $40
85MB IDE drive (10ms)	**Add $60**
130MB IDE drive	Add $95

EISA 486 Systems

- ☐ EISA motherboard w/256K cache
- ☐ 4MB 70ns main memory installed
- ☐ **BusLogic EISA SCSI host adapter**
- ☐ 200MB SCSI hard drive
- ☐ Both 1.2 & 1.44 **TEAC** floppy drives
- ☐ 2 serial/1 parallel/1 game ports
- ☐ 101-key enhanced keyboard
- ☐ 14" SVGA .28 DP color monitor
- ☐ Super VGA card with 1MB
- ☐ Desktop case with power supply

486DX2-66/50 $2,115/1,950
486DX-50/33 $2,010/1,820

Local Bus SVGA w/1MB	Add $75
340MB SCSI hard drive	Add $260
External SCSI Enclosure	CALL
EISA Ethernet card	CALL

System Options	Add
Tower and black cases	CALL
Upgrade from SVGA card w/1MB to:	
Diamond Speedstar 24X	$100
Diamond Stealth DRAM	$120
Orchid Fahrenheit 1280VA	$115
Upgrade from .28 SVGA monitor to:	
14" VESA SVGA(NI) monitor	$45
15" flicker free VESA monitor	$130
Viewsonic 6E or 7	$80/780
Colorado 120/250MB tape drive	$160/199
Internal modem 2400 or 9600bps	$32/180
Internal 9600/2400 fax/modem	$52
Internal 14,400/9600 fax/modem	$195
Logitech bus/serial mouse	$64/58
Microsoft serial mouse	**$45**
3-button serial mouse	$14
MS DOS 5.0 or Windows 3.1	**$34/34**
MS Windows for Workgroup	$67
NE2000 compat. LAN card	**$66**
Pocket LAN adapter	$210
NetWare 3.11/Lite/Lantastics	CALL

MPC Upgrade Kit

- Sound Blaster Pro sound card
- Creative Lab CD-ROM drive
- **7 (Seven) CD titles**
- Two free stereo speakers

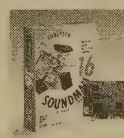
$505

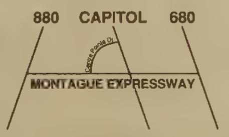
Media Concept 2.0+

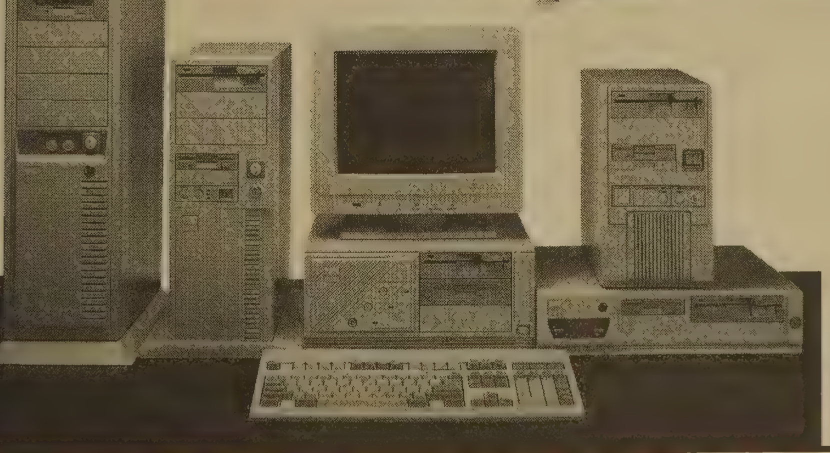
- Sound Blaster compatible sound card w/MIDI interface and game port
- Microphone and two speakers
- Trax MIDI sequencer software

$76

Please Call for Customized Configuration & Barebone Systems







School & Corporation PO's Welcomed
VISA & MasterCard Accepted

P.S. Computers

1614 Centre Pointe Drive, Milpitas CA 95035
ORDER: (408)956-8373 **Fax: (408)956-8374**
Tech Support: (408)956-8380
Hours: 8AM-7PM (M-F), 10AM-4PM (Saturday) PST

- **1 year parts and 5 years labor** warranty on systems
- 30-day money back guarantee upon IBM incompatibility on P.S. systems excluding peripherals and software
- Shipping, insurance and COD charges are non-refundable
- All returns are subject to 15% restocking fee
- 48-hour system burn-in
- UNIX/Novell expertise
- Life time technical support
- Prices reflect cash discount
- Prices subject to change

controller will run around $800. If you plan to run Windows in the SVGA (800 x 600 or above) modes, you will need at least a 17" monitor in order to be able to read the text, and a fast video adapter optimized for Windows using the S3 chip set or better.

The good news is that the monitor and card (and hard disk for that matter) will work with most 286, 386, or 486 systems, so you preserve your investment. I have been impressed with the 1MB SVGA graphics controllers that use the Tseng ET-4000 chip set (for non-Windows applications) and the non-interlaced CTX SVGA monitor. If you use Windows, you might want to look for a more expensive S3 local bus, ATI, or Compaq graphics adapter for speed.

DECISION POINT 12: OTHER STUFF

There's a bewildering array of mice, modems, printers, and other options too numerous to discuss. However, Hewlett-Packard LaserJets and the "no-name" Hayes-compatible modems with Rockwell chip sets are so reliable as to deserve particular mention.

If you're still having trouble making up your mind, read the trade magazines for the results of their systems testing and recommendations. My final tips are: 1) keep your "killer" system cool; 2) always preserve it by using surge protected power strips; 3) unplug your system during *any* electrical disturbances; and 4) only turn your computer off once a day (or week, if you use it daily). For "mission critical" applications, use an online APC or Best UPS (uninterruptible power system) and leave it on all of the time, except during electrical disturbances or prolonged power outages. ■

SAMPLE PC KILLER CONFIGURATIONS

Component					
Motherboard	286	386SX	386DX	486DX	486DX
Speed (MHz)	20	33	40	33	50
Memory Cache (K)			64	64	256
	$45	$98	$149	$450	$725
Memory					
2MB	60				
4MB		60			
8MB			240	240	240
IDE Hard Disk Drive					
80MB	193				
120MB		250			
213MB			355	355	355
CTX 14" SVGA Monitor					
Interlaced	259	259			
Non-Interlaced			289	289	289
Tseng 1MB Video	69	69	69	69	69
IDE/FD/IO Controller	13	13	13	13	13
TEAC 1.2MB Floppy	49	49	49	49	49
TEAC 1.44MB Floppy	43	43	43	43	43
Case w/200W Pwr Sup	49	49	49	49	49
Keytronics 101 KB	35	35	35	35	35
MS/DOS 5.0	29	29	29	29	29
Labor to Assemble	100	100	100	100	100
Total (without tax)	$955	$1099	$1430	$1791	$1996
Relative Performance	14.8	35.5	48.8	72.1	108.1

(4.77MHz XT = 1.0 using Norton's SI)

Best Prices With Free Installation,
Services & Delivery
For Systems Only

We Offer
UNIX
SOLUTIONS

SCO
THE SANTA CRUZ OPERATION
Authorized Reseller SCO UNIX

Novell Certified NetWare Engineer

We're the leading UNIX consulting company. When it comes to UNIX nobody offers more than Ramcomp at guaranteed lowest prices! We offer the widest selection of UNIX system & application software.

UNIX SHOPPING MADE EASY

SCO UNIX OS (2 user) $495
SCO UNIX OS (3+) 895
SCO UNIX Dev Sys 895
SCO X Window Complete.......... 495
SCO X Windows RTS.......... 295
SCO X Windows Dev 295
SCO VP/1x Unltd (3+).......... 650
SCO MPX.......... 695
SCO Portfolio $495
SCO TCP/1P Dev Sys.......... 350
SCO TCP/1P RTS Unltd 495
SCO NFS 495
SCO ODT Personal sys.......... 995
SCO ODT Server upg 1188
SCO ODT Dev sys 1295

Let us create an environment for your organization where Unix is a way of life, providing Multi-User, Multi-Tasking power of Unix as your solution. Our services include the following:

- Unix Installation
- Unix Complete Training
- Custom Software Development in Oracle & Foxplus
- Unix Technical Support & Advice

We carry the Following Brand Names and Ask For Others You Don't See:

3Com® Canon ALR
AST Research Inc. Mitsubishi Electronics Panasonic
Hewlett Packard
intel I-MEGA AMI
NEC CITIZEN SAMSUNG

NOVELL NETWORKING SOLUTIONS
In Local Area & Wide Area Networks

NEW INSTALLATIONS
Free evaluation of your needs & site inspection. Turnkey jobs including installation of cabling system. Ask for quotes.

UPGRADING THE EXISTING INSTALLATION
Adding storage to the server, changing the network architecture or topology. Installing a later version of Netware. (Free back up and restoration of data in any upgrade.)

EXPANDING THE EXISTING NETWORK
Adding a server, adding new segments using repeaters, bridges & routers, etc.

Use the knowledge of our Netware engineers to route your bytes to their destination through the safest and most cost effective path without compromising speed and performance.

Repair and upgrading, revamping on site for all computers
Minimum Charges

690 Market Street - Suite 515
San Francisco, CA 94104
Hours: Mon-Friday 9 A.M.-6 P.M.
Sat - Noon-5 P.M.

RAMCOMP
The Computer People...
415/986-5125 • Fax - (415) 986-3677

APPLE EXPO WEST

Featuring the Entire Apple and Macintosh family of Products and Services

APRIL 23-25, 1993

In conjunction with BMUG
(Berkeley Macintosh Users Group),
this is your only opportunity
to learn, educate and explore
many products and services.

SAN FRANCISCO BROOKS HALL

The event for Educators, Consumers, and Small Business !

For more information on attending or exhibiting the ***most cost effective event*** for the entire family of Apple Computer products and services

call **1-800-955-6630** in Mass. **617-784-4531** FAX 617-784-1830

Three days of learning and understanding....

SEE for yourself what the newest software can do for your computer.
HEAR the latest on new technology from the experts in the industry.
TOUCH and feel the incredible power of the entire family of Apple Computers.

Choose from hundreds of products and services at special show prices!

Partial List of Exhibitors as of 12/15; A+ Publishing, Adobe Systems, Aladdin Systems, Alltech Electronics, Altsys, ARS Nova Software, BMUG, Inc., Boston Computer Society, Bytes Of Learning, Claris Corporation, Compact Disc Services, Computer Covers Unlimited, Computer Literacy Press, Computown, Curriculum Product News, Discis Knowledge Research, Inc., Dreamworld Software, Econ Tecnologies, Educational Resources, FWB, Great Wave Software, Insignia Solutions,Intellimation, IntelliTools, Interplay Productions, Learning Services, LRO Computer Sales, MacAcadamy, Madson Line, Microtech International, MicroTimes, Nada Chair, National Instruments, NAUG, Nisus Software, Parsons Engineering, Personal Training Systems, Prodigy, Quality Computers, Roger Wagner Publishing, Scholastic Inc., Sequential Systems, Seven Hills Software, Silicon Sports, Simplexity Software, Softdisk Publishing, Sumeria Inc., Survivor Software, TGS Systems, The ARC, Thunderware, Ventura Educational Publishing, Vision Software, Wings for Learning, *and more coming in daily!*

✂- -✂

☐ **YES**, I'm interested in attending and want to **SAVE $5.00 OFF** each registration with the early bird discount.

Early bird preregistration ***only*** **$15.00** per ticket (includes all conferences) Onsite price $20.00.(cash only)

Name ____

Company Name ________________________________

Address _____________________________________

City ____________________ State _____ Zip __________

Phone (   ) _________________________________

Quantity ________ Amount Enclosed ________

☐ Check Enclosed ☐ Money Order

Send this form and payment before March 20th to:

EVENT SPECIALISTS
17 LILAC ROAD
SHARON, MA 02067

☐ **YES, Send me exhibitor information ASAP, booth space is selling quickly!**

***CALL* EVENT SPECIALISTS 617-784-4531 FAX 617-784-1830**

Apple, Macintosh are registered trademarks of Apple Computer, Inc. The Apple Expos are not affiliated with Apple Computer

ISDN
TELEPHONE SERVICES

ISDN, Using Existing Telephone Wires, Might Be That Golden Spike In A New National Information Standard

BY ROBERT MOSKOWITZ

In 1869, railroad workers hammered the Golden Spike into the Transcontinental Railroad at Promontory, Utah, symbolizing not only the physical construction of a railway from one ocean to the other, but more importantly (and far less obviously) the launching of a national standard for railroad tracks that suddenly permitted cargo to be loaded into a boxcar in one place and moved anywhere in the country without interim handling.

Proponents of the National ISDN (Integrated Services Digital Network) Standard are hoping that future historians will draw the same conclusions about TRIP '92, the Transcontinental ISDN Project that signaled the effective launch of viable ISDN services to everyone in the US, particularly California.

Originally proposed more than a decade ago as a world wide standard, ISDN is a system for transmitting digital information over any medium.

Although Bill Clinton and others are proposing major rebuilding of the nation's information infrastructure, with particular emphasis on replacing the millions of miles of twisted-pair copper wires so familiar to phone users with fiber optic cables, the cost of such a replacement is so high that during the next decade the likely alternative scenario is for deployment of a technology that provides far more effective use of what we have. ISDN is that technology.

UNDER ISDN, FOR EXAMPLE:

The Jet Propulsion Laboratory in Pasadena is using ordinary telephone wires to carry real-time black-and-white and color TV conferencing between desktop PCs located within a single building and between separate, local buildings.

The University of California at Berkeley is using ordinary telephone wires to carry voice and other sounds in an experiment involving the Center for New Music and Audio Technology with the Electrical Engineering/Computer Science Department.

California Institute of Technology, Lawrence Livermore Laboratory, and UC Berkeley are using ordinary telephone wires to provide high-speed computer data access between faculty, staff, and students, both at home and on campus.

California Polytechnic Institute at San Luis Obispo is cooperating with nearby Arroyo Grande High School in using ordinary telephone wires to support a two-way, interactive video, "distance learning" program.

California State University at Chico is using ordinary telephone wires to support both point-to-point and point-to-multipoint use of multimedia for its own innovative "distance learning" project.

Lockheed's Credit Union is using ordinary telephone wires to support its Automatic Call Distribution System, and to make possible call data storage for later analysis and decision making.

Dunn and Bradstreet's California office is using ordinary telephone wires to support its nationwide video teleconferencing network, and for two-way interactive video. Management sees both technologies as ways to reduce business travel and speed up communication between employees located in far-flung sites around the country.

(Some of these same capabilities are available under a technology called Switch 56, but this is an older, generally more limited approach, with a slightly smaller information-carrying capacity than ISDN, and will be gradually phased out as ISDN is phased in.)

Originally proposed more than a decade ago as a world wide standard, ISDN is a system for transmitting digital information over any medium. However, it makes particular sense for use with today's nearly ubiquitous copper wires, where the information-carrying capacity is otherwise so painfully limited. In pure form, ISDN creates three separate channels on a twisted-pair wire: two channels are capable of carrying 64K bits per second (Kbps), and one is capable of carrying 16Kbps.

This means a single telephone wire can look like three separate telephone wires, allowing a person to talk, fax, and modem in two directions all at the same time. By using the channels in various combinations, a single wire can carry three normal telephone voice conversations, or two voice conversations and one computer data connection (say, to a network, a host, or another PC), or one real-time video signal, or virtually any other combination that can be fit within the total bandwidth. By placing two or more calls from one location to another, users can instantly access as much additional information-carrying capability as they need.

If a company is less interested in computer communications, the ISDN technology can be used to reduce the number of physical lines and trunk capacity required. Because voice conversations are carried

continued on page 198

RESOURCES:

Realty Link
PacBell
Lou Saviano
(415)545-8191

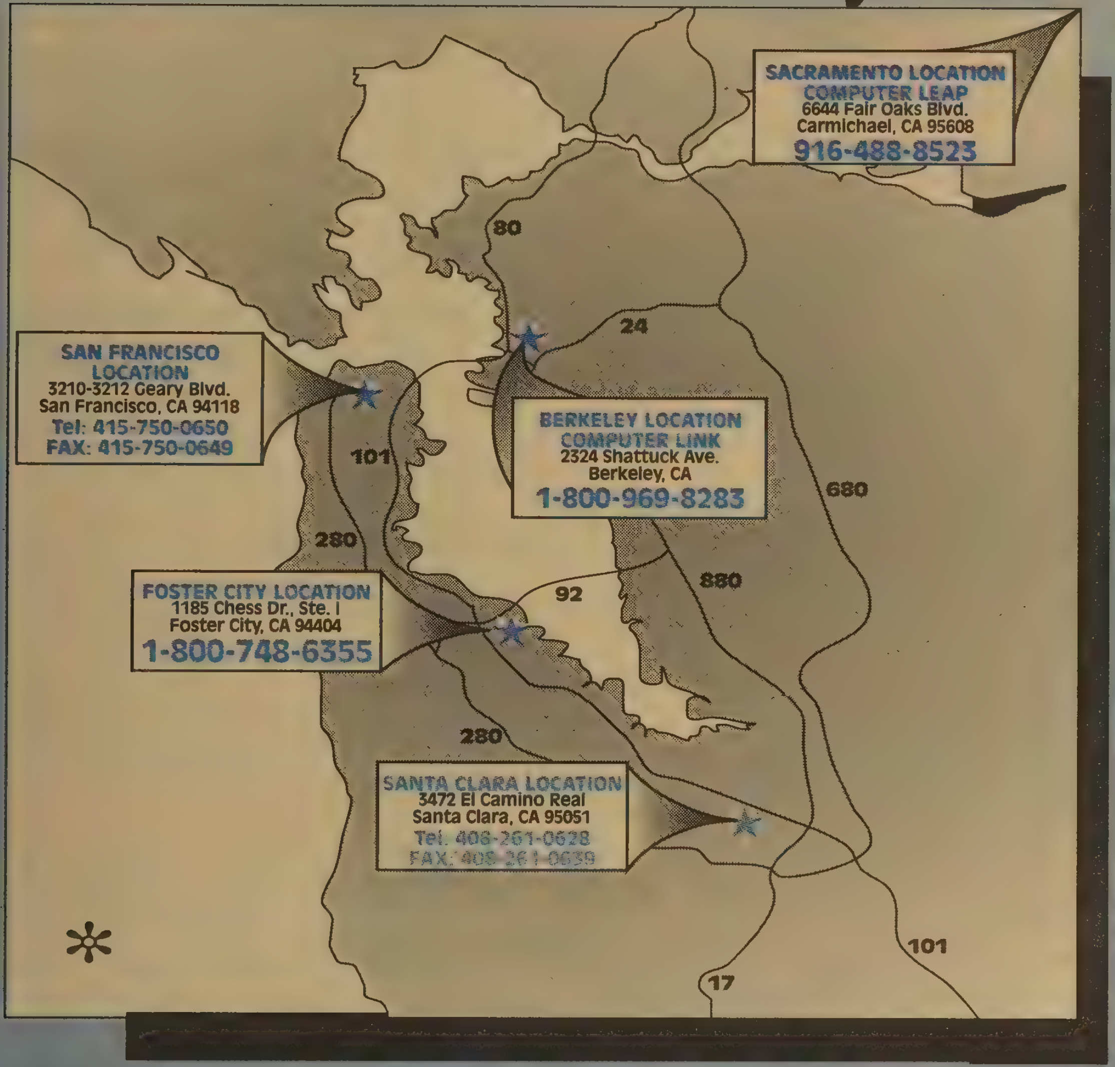
Trip '92 Conference
Jim Jacobson, co-chair
Jet Propulsion Laboratory
Pasadena, CA

Copyright © 1993 by Robert Moskowitz. All rights reserved. Robert Moskowitz is a business consultant based in Woodland Hills, CA, who writes frequently on productivity, office automation, and technology.

MDS

MICROLINK
DATA SYSTEMS INC.

5 Locations for your Convenience....



SACRAMENTO LOCATION
COMPUTER LEAP
6644 Fair Oaks Blvd.
Carmichael, CA 95608
916-488-8523

SAN FRANCISCO LOCATION
3210-3212 Geary Blvd.
San Francisco, CA 94118
Tel: 415-750-0650
FAX: 415-750-0649

BERKELEY LOCATION
COMPUTER LINK
2324 Shattuck Ave.
Berkeley, CA
1-800-969-8283

FOSTER CITY LOCATION
1185 Chess Dr., Ste. I
Foster City, CA 94404
1-800-748-6355

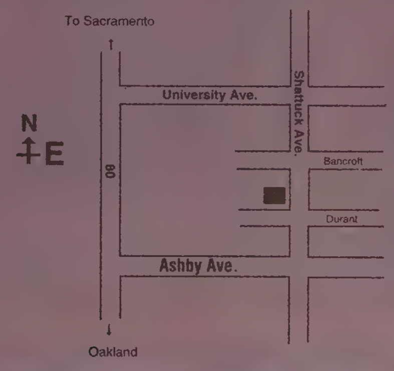
SANTA CLARA LOCATION
3472 El Camino Real
Santa Clara, CA 95051
Tel. 408-261-0628
FAX: 408-261-0639

80
24
101
680
280
92
880
280
101
17

BERKELEY / OAKLAND
1-800-969-8283

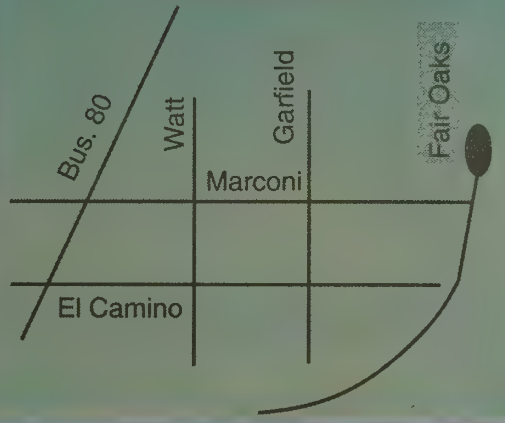
SOFTWARE TRAINING
ALL COURSES $50.00

• *Monday*	*WINDOWS 3.1*
• *Tuesday*	*WORD 2.0 FOR WINDOWS*
• *Wednesday*	*EXCEL 4.0*
• *Thursday*	*DBASE IV*



To Sacramento
University Ave.
Shattuck Ave.
N
E
Bancroft
Durant
Ashby Ave.
Oakland

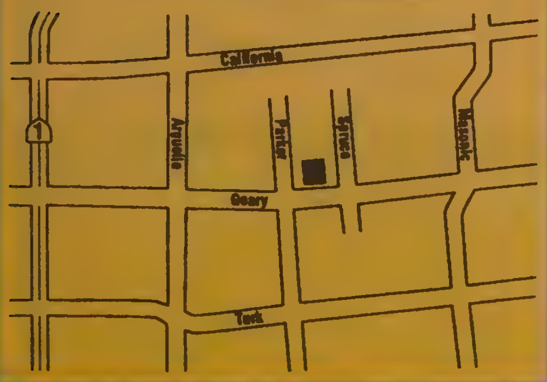
SACRAMENTO
916-488-8523



Bus. 80
Watt
Garfield
Fair Oaks
Marconi
El Camino

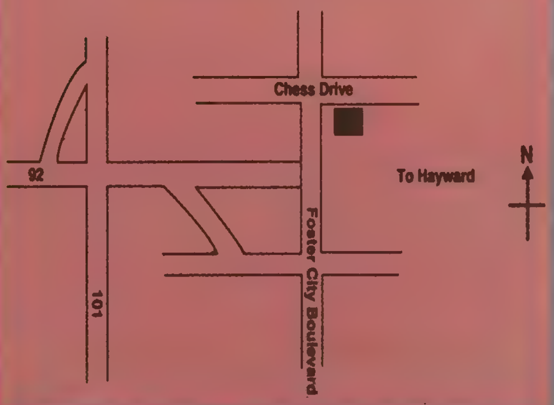
We Support:

SAN FRANCISCO
415-750-0650
FAX: 415-750-0649



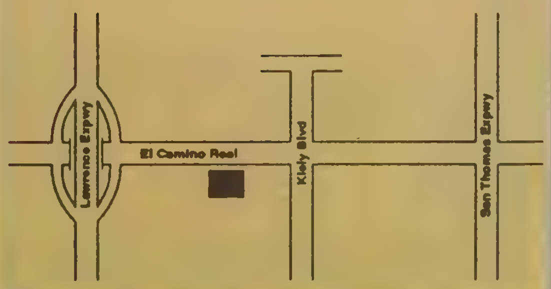
California
1
Arguello
Parker
Spruce
Masonic
Geary
Yerk

FOSTER CITY
1-800-938-7888



Chess Drive
92
To Hayward
N
101
Foster City Boulevard

SANTA CLARA
408-261-0628
FAX: 408-261-0639



Lawrence Expwy
El Camino Real
Kiely Blvd
San Thomas Expwy

Monday thru Friday 9am ~ 6pm . Saturday 10am ~ 5pm

MDS
Quality Everywhere

VESA LOCAL BUS...

The Ultimate Machine For Windows....

32-BIT

MDS-MAXI VESA

Ends the Search for

the Power Hungry...

- Intel486® Mircoprocessor
- Built-in Math-CoProcessor
- FULL Tower w/ **UL** 250W & Speed Display
- AMI BIOS with Built-in Setup Utilities
- 256K of 20ns Cache
- 4 MB of 70ns RAM exp. to 32MB
- 130MB 15ms HD w/ 64k Cache
- TEAC 1.2 and 1.44MB Floppy Drives
- VESA 16.7M Colors SVGA Card w/ 1MB
- 14" Non-Interlaced SVGA Color Monitor (HITACHI Tube, 0.28mm, 1024x768)
- 101 Enhanced-Style Keyboard
- 2 Serial/1 Parellel/1 Game Ports
- Free Microsoft DOS 5.0 & Windows 3.1
- Free 3-Button Hi-Resolution Mouse

486DX2-66MHz	**$2075**
486DX-50MHz	**$1875**
486DX-33MHz	**$1675**

UPGRADE OPTIONS

VESA S3 Accelerator w/ 1MB	**+$95**
ATI Ultra Pro w/ 2MB VRAM	**$345**
ATI Ultra Plus w/ 2MB DRAM	**$235**
VESA IDE Controller	**$65**
VESA IDE w/ 1MB Cache	**$225**
VESA SCSI Controller	**CALL**
VESA Network LAN Card	**CALL**

MDS-MAXI 486 PC's

- Intel486® Mircoprocessor
- Built-in Math-CoProcessor (DX Only)
- Baby Desktop w/ **UL** 235W Power Supply
- AMI BIOS with Built-in Setup Utilities
- 64K of 20ns Fast Cache Memory
- 4 MB of 70ns RAM exp. to 32MB
- 85MB 15ms HD w/ 32k Cache
- TEAC 1.2 and 1.44MB Floppy Drives
- 16-Bit SVGA Card w/ 1MB
- 14" SVGA Color Monitor(1024x768, 0.28mm)
- 101 Enhanced-Style Keyboard
- 2 Serial/1 Parallel/1 Game Ports
- Free Microsoft DOS 5.0 & Windows 3.1
- Free 3-Button Hi-Resolution Mouse

486DX2-66MHz	**$1745**
486DX-50MHz	**$1575**
486DX-33MHz	**$1375**
486SX-33MHz	**CALL**
486SX-25MHz	**$1225**

MDS Specializes in Custom Configurations.

Super Tower, File Servers, CAD Stations, 2 Giga Bytes Hard Drives, etc...

UPGRADES & OPTIONS

MULTIMEDIA

Panasonic 340ms MPC CD ROM
Sound Blaster Pro & Midi Kit
Two Mini Stereo Speakers
Creative Lab Standard 6 CDs:

- MS Windows 3.1 Master
- MS Works for Windows
- Sherlock Holmes
- Creative Sounds
- Software Library
- MS Bookshelf

$545

STORAGE/Fans

On-Board Memory	$40/MB
85 to 130MB HDD	$65
130 to 210MB HDD	$135
210 to 340MB HDD	$345
340 to 540MB HDD	$395
SCSI HDDs	Call
120/250MB Tape Backup	$195
Tape for 120/250MB	$25
2nd Cooling Fan	$25
CPU Heat Sink/Fan	$25

DISPLAY

SVGA to Diamond 24X	$125
SVGA to Fahrenheit/Stealth	$145
SVGA to ATI Ultra	$195
SVGA to ATI Ultra Pro	$395
14" 1024I to 14" 1024NI	$50
14" 1024NI to 15" 1280NI	$145
15" 1280NI to 17" 1280NI	$425
14" NI to ViewSonic 6E	$50
ViewSonic, MAG, NEC, SONY, Nanao	Call

MODEM

9600/2400 Fax/Modem	$65
9600/14400 Fax/Modem	$225
2400Modem	$40

NETWORK

16-Bit Bus Ethernet Coax	$115
16-Bit Bus Ethernet 10-BT	$115
Cables, Connectors	Call
NOVELL Software	Call
SMC/WD, 3Com	Call

intel inside

* The Intel Inside Logo is a registered trademark of Intel Corporation

THE MDS PROMISES

3-year parts & 2-year labor warranty
30-day money back guarantee
30-day instant replacement policy
Lifetime toll-free technical support
72-hour BARITON system burning test
On-site service available in U.S.A. & Canada
PO's of qualified corporations and institutions welcome
Leasing & net terms available for qualified customers

Check With Your Local Better Business Bureau!

GOVERNMENT ★ FORTUNE 500
CALL
VIP
00-938-7111
The Definite Partner
for Today's
Decision Maker
DEALERS ★ EDUCATIONAL

SAN FRANCISCO
3210-3212 GEARY BLVD.
SAN FRANCISCO, CA 94118
800-748-6269
(MON-SAT 9AM-6PM)

FOSTER CITY
1185 CHESS DRIVE
FOSTER CITY, CA 94404
800-938-7555
(MON-FRI 9AM-6PM)

SANTA CLARA
3472 EL CAMINO REAL
SANTA CLARA, CA 95051
800-675-5465
(MON-SAT 9AM-6PM)

BERKELEY
2324 SHATTUCK AVE.
BERKELEY, CA 94704
510-540-8283
(MON-SAT 9AM-6PM)

SACRAMENTO
6644 FAIR OAKS BLVD.
CARMICHAEL, CA 95608
916-488-8523
(MON-SAT 9AM-6PM)

Bring Windows Power On The Road.....

MDS Maxi+ Jetbook

- Weight 6.6 lbs; Dim: 11.2 x 8.9 x 1.9
- [illegible] Hitachi [illegible] Gray Scale LCD VGA
- [illegible] Hrs. Ni-Cad [illegible] Battery
- 90V to 260V Autoswitchable Adaptor
- Intel486DX® -33 CPU
- Built-in Math Coprocessor (DX only)
- 8k Burst Mode Cache
- [illegible] External Cache
- 4mb 70ns RAM (Exp. to 8 or 32)
- 85mb HDD (125/210mb Optional)
- 1.44mb Internal FDD
- 85-key w/ 12 Dedicated Fuction Keys
- Inversed "T" Arrow Keys
- Serial, Parallel, Scanner, Keyboard, VGA, PS/2 Mouse, AT Bus Ports
- Resume/ Suspend Power Management
- Built-in Track Ball
- Built-in Fax/Modem (Optional)
- Battery Low Visual/Audible Alarm
- Int. SmartCharger™ w/ Overcharger Protection
- Comfortable Typing Hand-Rest
- Support Ext. SVGA Monitor
- Support Docking Station
- Support Ext. 1.2mb FDD
- Free MS DOS 5.0/ Windows 3.1
- Free Carrying Case
- 1-year Parts and Labor Warranty

MAXI PLUS i486 JETBOOK

BANG! BANG!

486DX-33MHz
$2,395

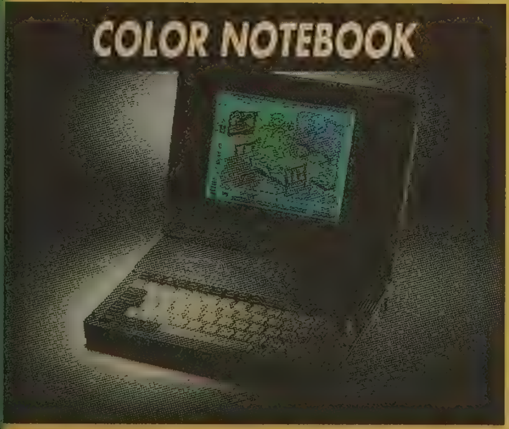
486SX-25MHz
$2,195

Active Matrix COLOR VGA .... CALL

UPGRADE OPTIONS

4mb to 8mb RAM	$225
85mb to 125mb HDD	$150
85mb to 210mb HDD	$445
Int. 24/96 S/R Fax/Modem	$125
Pocket Fax/Modem	$125
Docking Station (Color)	$295
Docking Station (Jetbook)	$345
Ethernet Coaxial Adaptor	$175
Extra Battery Pack	Call

COLOR NOTEBOOK



- Weight 6.6 lbs; Dim: 11 x 8.5 x 2
- 9" STN Color LCD VGA
- Intel486DX® -33 CPU
- Built-in Math Coprocessor
- 8k Burst Mode Cache
- 4mb 70ns RAM (Exp. to 8 or 20)
- 85mb HDD (125/210mb Optional)
- 1.44mb Internal FDD
- Inversed "T" Arrow Keys
- 2 Serial, 1 Parallel, Keyboard, VGA and AT Bus Ports
- Resume/ Suspend Power Management
- Free MS DOS 5.0/ Windows 3.1
- Free Carrying Case; Numeric Key Pad
- 1-year Parts and Labor Warranty

486DX2-66MHz........$3095
486DX-33MHz.........$2795

MAXI PORTABLES

- Contains Intel486® Microprocessor
- LCD Display (Gas Plasma or Color LCD/ CRT Available)
- 64K 20ns Cache Memory
- 4 MB of 70ns RAM exp. to 32MB
- 130MB 15ms HD w/ 64k Cache
- TEAC 1.2MB $1.44MB Floppy Drives
- 16 Bit SVGA Card & 640x480 Display
- Support 1024x768 Ext. Display (Gas Plasma/ CRT)
- 110/220V Auto-Switchable Power Supply
- 2 Serial/1 Parallel/1 Game Ports
- Free Heavy Duty Carrying Case Included
- Free High Resolution Mouse
- Free Microsoft DOS 5.0 & Windows 3.1

486DX-50MHz.........$2145
486DX-33MHz.........$1945
486SX-33MHz.........$1845

GAS PLASMA (12:1)..........+$250
GAS PLASMA (150:1)..............+$500
COLOR CRT (SONY Trinitron).......+$600
COLOR LCD............................+$1250

ORDERING INFORMATION:
MasterCard and Visa Accepted. Leasing and net-terms available to qualified customers. Shipping and handling are additional. C.O.D. orders add $10 special handling charge. Call for special UPS Red/Blue terms. No sales tax outside of CA. Products labeled FREE on advertising are not covered by warranty. All returns must have RMA# issued by our Customer Service Department (415-571-5193). All returns must be shipped with original packaging, invoice, and documentation pre-insured and pre-paid. Incomplete, or unauthorized returns are non-refundable or subject to restocking charge. Returns of products not listed in the standard configured are subject to a 20% restocking charge. Refunds will be granted less deductions on freight, insurance, and corresponding charges related to the payment. All prices and specifications are subject to change without notice. MDS is not responsible for typography errors.

SYTECH-USA
Quality systems & Components

HARD DRIVES SPECIALS!!
The best prices or we will beat

Capacity	40MB	84	130	213	240
SEAGATE	$135	$189	$224	$325	$349
MAXTOR	$135	$174	$224	$325	$349

WE CARRY OTHER BRANDS ALSO,PL CALL

PC-TV
$168
5 Yars Labor
1 Year Parts
on all items

Notebook pc
Bondwell $1539
486SLC25 4MB RAM
120MB HD\ FAX/MODEM
WITH ALL OPTIONS FREE

Corporates, Exporters & Intlorders O.K
All the Systems Includes:
Choice of MB with CPU
1.2 & 1.44 Floppy Drive
4MB RAM 60NS
Hard disk (IDE) 130MB
S.V.GA. Monitor .28DPI
S.V.G.A CARD
2 Serial, 1 Par & 1 Game ports
Spil resist 101 keyboard
M.S Mouse
Mini Tower or Desktop Case * 200W PS

ADD$100 FOR 213MB H.D

386DX40	$999
486SX25	$1039
486DX-2-50	$1259
486DX50	$1039

L-B SYSTEMS
E-T 4000 VESA
VGA CARD

V-LOCAL Bus 486DX 33/50 $1399/1599
EISA L Bus 486DX 33/50 $CALL/1688

MEMORY

256x4simms	$11.95
1x9 3chip 70ns	$30.95
1x9 9chip 70ns	$34.95
1x9 3chip 60ns	$34.95
4x9 9chip 70ns	$call
4x9 9chip 60ns	$call

CPU'S $CALL

MATH-CO-PRO	$CALL
Print Mem- HP 1MB	$59
Print Mem- HP 2MB	$89
Prin Mem- HP 4MB	$165
YOUR CHOICE	$Call
Super IDE & I/O	$14.95
SCSI FUTURE DO	$89.95
SCSI ADAPTEC	$199.95
SCSI W/CACHE	$CALL
MFM Controller	$47
Adaptec, Promise	$call

ACCESSORIES

Keyboard 101	$18.9
FOCUS,BTC,NTC,MAXI	$call
Mouse M.S Comp	$11.90
Floppies 1.44	$42.95
Floppies 1.2	$45.95
Any other pl	Call

CASES

Mini Tower w/200	$49.95
Desktop w/200	$52.95
Medium Tower w/230 ps	$79.95
Full Towerw/230	$109.95
For larger P.S. pl.	$CALL

OAK SVGA 256K	$24.95
Trident 512k SVGA	$42.95
Trident 1MB SVGA	$54.95
Diamond	call
ATI, Hercules, Orchid	call
MX-2400	$34.95
MX-24/96/48	$53.95
MX-24/96	$64.95
External Modem/Fax	$call

TAPE BACKUP

Colorado 120 Mb	$CALL
Colorado 250 Mb	$CALL
CALFORNIA 250MB	$199.95
TAPE 250MB	$21.95

Multi media

Sound Blaster	$95.95
Sound B pro Basic	$159.95
C.D ROM	
GEN STAR 5000i	$289.95

(KODAK PHOTO CD Com)
Multimedia Upgrade system $Call

New Products

Phone+keyboard	$call
Mouse+keyboard	$call
FAX on Demand	$call
Voice mail	$call

Fax on demand
Fax machine as
scanner
Voice mail
Complete system
$1399

LIFE TIME
TECH SUPPORT
•
UPGRADE LABOR FREE

We also sell fully
customize systems
for CAD/CAM

CREDIT CARDS OK
NO EXTRA CHARGE
Not responsible for typos
Prices are subject to change without any notice

FINANCING AVAILABLE

NOW SERVING IN TWO LOCATIONS

701 ALDO AVE # 27
SANTA CLARA, CA 95054
TEL:408-988-5892
FAX:408-988-5856

620 CONTRA COSTA BLVD
PLEASANT HILL, CA 94523
TEL:510-798-3129
FAX:510-798-3128

in virtual "channels" which the ISDN system can allocate as needed within the physical wiring that's available, one wire can appear to be three, and a company's trunk charges can be reduced by up to 30% with no loss in efficiency or call-carrying capacity. What's more, the "digital" nature of the signal means that quality will be much higher, and much less susceptible to "noise" problems—just as CDs and other digital sound recordings offer better quality on earlier, non-digital technologies.

Although the capability is not yet widely advertised, nearly half of all telephone lines in California are capable of ISDN service right now, and the phone companies plan on "relative ubiquity" within another two or three years. So far, business users must order at least two ISDN lines to qualify for the service, but within a month or two the Public Utilities Commission will approve new single-line service that will put a whole new set of communications capabilities at the fingertips of practically anyone who wants them.

"As of the end of 1992," says Dan Smith, a spokesperson for GTE who is familiar with its ISDN offerings, "we had twelve central offices in California capable of providing ISDN services, and we're adding at least nine more during 1993. That's tens of thousands of customers, right there." GTE's rates are approximately $12.25 per month for ISDN capability, plus $1.50 to $2 per month for each voice channel, and approximately $6–8 per month for each switched data channel.

PacBell, also hoping for approval of single-line ISDN service, charges about $220 per ISDN line for installation, and $29.50 per month. When single-line service comes in, costs may fall significantly, particularly if incentive packages are added to reduce the effective installation cost and reduce the minimum time commitment for ISDN service.

Telephone companies all over the United States and Canada are scrambling to institute ISDN technology. Because it permits so many more services to be provided over their existing wiring, the telephone companies are extremely excited about the potential demand for more telephone calls as ISDN-based applications become more important to everyday life and business.

To obtain ISDN capability over today's wiring, three conditions must be met. First, the telephone companies must put ISDN capabilities into their central offices. They're already working on this, and are nearly halfway to completion. Second, each user must rent or purchase digital telephone equipment capable of ISDN communications. Dozens of such products are on the market, and available through local telephone companies or from independent vendors. In fact, thousands of business organizations have already moved to meet these two requirements within their own facilities, and thus to provide enhanced, advanced communications services within their "private switched network."

But ISDN won't become really useful and popular until it allows one organization to reach out electronically to another. And for this, a third requirement must be met: all the ISDN equipment must conform to a single version of the ISDN standard. This is where TRIP '92 comes in.

The TRIP '92 Conference, in November 1992, was a week-long conference, exhibition, demonstration, and training ground designed to demonstrate the practical viability of ISDN, as well as to further its development through promotion of the newest and broadest ISDN standard: National ISDN-1.

"We're already moving to the National ISDN-1 standard," says Dan Smith of GTE, "because we're convinced it's going to be of great significance to our customers. They'll be able to use ISDN services between different companies, even those outside GTE service areas, so it's a much more valuable service than ever before."

National ISDN-1 is a standard to which most manufacturers and telephone companies in North America have agreed to meet. Next year, and the year after that, National ISDN-2 and then 3 will be implemented. Each new level of agreement paves the way for more enhanced services better compatibility between devices from different manufacturers, and extended communications capabilities over the same twisted-pair wires we're using now.

"When ISDN was first proposed," explains Murray Robertson, the group products manager for advanced switched network services, at GTE's Telephone Operations National Headquarters in Irving, TX, "the various vendors began

Lowest price for USA VESA Local Bus

Made in USA, 3 Vesa Local Bus Slot Basic System	AIR EISA 486DX-50 W/ 256K Cache	1230
Made in USA, 2 Vesa Local Bus Slot Basic	ORCHID VLB 486DX-50 256K Cache	1030
Made in USA, 3 Vesa Local Bus Slot Basic	AIR VLB 486DX2-66 W/ 256K Cache	1100
Made in USA, 3 Vesa Local Bus Slot Basic	AIR VLB 486DX-50 W/ 256K Cache	980
Made in USA, 3VL Local Bus Slot Basic	AIR VLB 486DX-33 W/ 256K Cache	780
Made in USA, Basic System with 1 MB	BAY 486DX-50 W/64K Cache	790
Made in USA, Basic System with 1 MB	BAY 486DX-33 W/64K Cache	650
Landmark 64 MHz, Basic System with 1 MB	BAY 386DX-40 W/128K Cache	360
Landmark 53 MHz, Basic System with 1 MB	BAY 386DX-33 W/128K Cache	340
Landmark 33 Mhz, Basic System with 1 MB	BAY 386DX-25 MHZ	315
Landmark 33 Mhz, Basic system w/ 1MB	BAY 386SX-25 MHZ	285

486 • 386 • 386SX

BASIC SYSTEM INCLUDE

MotherBoard & CPU
1MB of Memory • 1.2MB or 1.44MB Floppy Drive
Multi I/O 2s/1p/1g • Desktop or Mini Tower + P.S.
1:1 2HD / 2FD Controller • 101 Enhanced KeyBoard
All 486 Systems, we used INTEL not CYRIX CPU.

*** AIR, ORCHID TECHNOLOGY, DASH are Baby size MotherBoard not Half size!!!**

HARD DISKS (CONNER, MAXTOR, QUANTUM)	
40 MB IDE (28ms)	$145
100MB IDE (18ms)	$185
120 MB IDE Maxtor (16ms)	$215
213 MB IDE Maxtor (15ms)	$325
245 MB IDE Maxtor (14ms)	$395
240 MB IDE Quatum w/256k cache	$410
340 MB IDE (13ms)	$570
520 MB IDE (13ms)	$890

VIDEO CARDS ISA BUS	
VGA (16 BIT, 800X600)	$40
Trident VGA, 1MB	$60
ProDesigner IIs Sierra DAC (32 K Color)	$145
Diamond Stealth VRAM S3 1MB ISA	$210
Orchid Fahrenheit 1280/VA (16.7 Millions)	$175

VESA LOCAL BUS PERIPHERALS/ VLB	
AIR SCSI Local Bus SCSI-2	$350.00
UltraStor SCSI-2 VLB 32k cache Buffer	$285.00
AIR IDE VLB + MULTI I/O for 486dx-50	$ 95.00
Promise VLB DC430 Cache IDE Contrl	$258.00
ORCHID 486 VLB w/256K 33/50 MHz	$295/345
AIR 486 VLB ISA w/256K 33/50Mhz	$240/250
AIR 486 VLB EISA w/256K 33/50Mhz	$465/495
Tseng ET4000 VLB w/ 1MB	$130.00
ATI Ultra Pro VLB w/ 2 MB VRAM	$410.00
Diamond Stealth-24 VLB S3 SVGA 1MB	$165.00
ORCHID FAHRENHEIT VLB 1MB-2MB	$190.00
Cirrus Logic VLB w/ 1MB 20M Winmark	$135.00
ORCHID Weitek P9000 VLB 3MB (Fast)	$420.00
Diamond Viper VRAM VLB 2MB	$420.00

MONITORS	
SuperVGA (1024x768,0.39mm)	$240
SuperVGA (1024x768,0.28mm)	$270
SuperVGA (1024X768, Non-int)	$310
NEC 3FGX 15" Flat Screen	$650
NEC 4FG 15" Flat Screen	$750
SONY 1304s .25 non-int	$570
MAG 15"/17" Monitor	$580/1075
Nanao F550I 17" PC Mag Editor Choice	$1050

PRINTERS	
Panasonic KX-1180i	$160
Panasonic KX-2123	$240
Deskjet 500/500C/550C	$395/519/719
HP IIP+/IIIP/IV	$795/995/1395

MISCELLANEOUS	
HiRes Mouse 400 DPI	$20
AIR SCSI Local Bus Controller	$350
DTC 16 Bit SCSI Controller	$135
SCSI Adaptec 1522 HD/FD	$110
SCSI Adaptec 1542 B w/o kit	$225
9600B/2400B FAX/ Modem	$60
14.4 K Modem/FAX v3.2,v,42bis MNP5	$190
Dual Floppy 1.2&1.44 Drive	$125
Logitech MouseMan Serial	$65
Creative Lab Multimedia + CD + 3 softwares	$470
Fusion CD 16 Sound + CD ROM	$510
Tape Back-Up Drive 120/250	$195/265
Sound Blaster Pro Basic	$159

ORCHID + AIR VLB COMPLETED SYSTEMS

ORCHID VLB 486-33 W/ 256K CACHE MED-TOWER SYSTEM	**ORCHID VLB 486-50 W/ 256K CACHE MED-TOWER SYSTEM**	**ORCHID 486DX2-66 W/ 256K CACHE MED-TOWER SYSTEM**
1.2 & 1.44 + Mouse + 4MB + Fahrenheit VLB SVGA + Maxtor 213MB + IDE VLB + Non-Int Monitor.28		
$1,915	**$2,105**	**$2,215**
AIR VLB 486-33 W/ 256K CACHE MED-TOWER SYSTEM	**AIR VLB 486-50 W/ 256K CACHE MED-TOWER SYSTEM**	**AIR VLB 486DX2-66 W/ 256K CACHE MED-TOWER SYSTEM**
1.2 & 1.44 + Mouse + 4MB + Fahrenheit VLB SVGA + Maxtor 213MB + IDE VLB + Non-Int Monitor.28		
$1,795	**$2,035**	**$2,145**
BAY 486DX-33 W/ 64K CACHE MINI-TOWER SYSTEM	**BAY 486DX-50 W/ 64K CACHE MINI-TOWER SYSTEM**	**BAY 486DX2-66 W/ 64K CACHE MINI-TOWER SYSTEM**
1.2 & 1.44 + Mouse + 4MB + TRIDENT 1MB + SVGA .28 MONITOR + 170 MB HD		
$1,350	**$1,520**	**$1,630**

BAYCOMPUTER, INC.

VISA

1252 So. Abel Street, • Milpitas, CA 95035
Tel: (408) 956-8014 • Fax: (408) 956-8013

MasterCard

Store Hours: Mon - Fri: 9:30AM - 6:30PM • Sat: 10:00AM - 5:00PM

Design by:AT GRAPHICS (408) 956-9691

anticipating what the standard would actually be, and made their own proprietary changes. AT&T and Northern Telecom, for example, incorporated slight variations. Now we have all adjusted to National ISDN-1, and we'll keep adjusting and adding features until we get the full ISDN feature set operational."

There are four main classes of ISDN-based service, according to Stephen Finlay, the ISDN primary rate service development manager with Stentor (a new consortium created and owned by the nine major phone companies in Canada). These are:

•Image database access, which allows users to look up and retrieve data, including high-resolution images, from remote databases. RealtyLink [see sidebar] is just one example of this class of application, that can also encompass services for tourism, for auctioning cars or other high-value items, and so forth.

•Group IV or color image facsimile, which requires a high-speed line. Designed for 56Kbps, this technology works just fine at ISDN's 64Kbps transmission speed. Group IV faxes are noticeably faster than today's Group III machines, with resolution like a good photocopy.

•Multimedia conferencing is another class of ISDN-based application, which can include any combination of voice, electronic graphics (such as a marking board which people at both ends can use simultaneously), the rapid exchange of computer files, and high-resolution video or other image information, as well.

•Switched video conferencing, popularly known as "picture phone." The extra bandwidth of ISDN lines allows PictureTel units connected by two simultaneous phone calls to provide quality that is easily good enough for ordinary business meetings. If users can tolerate a little image degradation, the same kind of video conferencing can be achieved over a single ISDN line.

With ISDN in place, hundreds of new possibilities for information exchange open up.

For example, small and medium-size businesses will be able to obtain and utilize data services—like interactive video—over ordinary telephone lines using ISDN, at far lower prices than the presently required dedicated lines. Telecommuters will gain immediate, high-speed access to data on their company's headquarters computers, along with the ability to link with others in ad-hoc networks for a minute, an hour, or a week. People working from home over a single telephone line will be able to use a modem and a fax at the same time, without interrupting their voice conversation. Professionals will be able to share data at high speed, work cooperatively on both images and text files, and access centralized records from virtually any location.

Some of the specific features and applications that ISDN will make possible include:

Simpler Network Access: ISDN makes it possible to eliminate complex network addressing and to identify and locate each network entity simply by a telephone number. Coupled with automatic identification services, each network function can be addressed with a meaningful, easy-to-remember name, while the network takes care of all addressing chores, even across multiple LANs, WANs, and various interconnections to entirely different network technologies.

Video Conferencing: ISDN allows ordinary twisted-pair wires to carry real-time video, so with a call to a colleague you can also make visual contact.

Broad Spectrum Information Transfer: Doctors, lawyers, architects, engineers, and other professionals will be able to transfer large amounts of information to and from colleagues over ordinary telephone lines, including files, images, blueprints, and other

continued on page 226

FIRST TIME EVER, SAVE BIG $$$
DIRT CHEAP
ASSEMBLE YOUR OWN...
SPARC/UNIX
Workstation
or
READY MADE
•NEW OR USED CPU BOARDS • EXTERNAL PERIPHERALS FOR SPARC • CHASSIS/POWER SUPPLY • MEMORY • CABLES • SOLARIS O/S • PC-NFS • ISLAND GRAPHICS • 10 BASET HUBS • SBUS ADD-ON AND MUCH MORE!
(ALSO SYSTEMS ADMINISTRATION ON SPARCS AND PC'S FOR ONLY $250 PER MONTH)
BASED ON CONFIGURATIONS
CALL 1-800-22SUNAR
or (408) 982-0288 • FAX: (408) 982-9369
LEASING AVAILABLE
E-Mail: sunar@netcom.com
3350 Scott Blvd. Ste. 1901
Santa Clara, Ca 95054
SUNAR SYSTEMS
THE COMPLETE SOURCE FOR SPARC UNIX NETWORKS
SPARC is a respected trademark of SPARC Inc • Solaris and PC-NFS is a respected trademark of SunSoft

FEATURES: NovaStor's novamac & novaback software
1/4 BACK
DATA BACKUP SYSTEMS
INTEGRATED DOS & MAC
PORTABLE TAPE BACK-UP
DOS
MAC

ALL IN ONE
• In one easy to use 1/4 inch Tape Package
• Uses DC6XXX 1/4 inch Cartridge in three convienient sizes
• 250MB • 525MB • 1.2 Gig
All Necessary
HARDWARE & SOFTWARE
Included!
PRICES START AS LOW AS
$1149
Exclusively Distributed by:
EAGLE PROJECTS, INC.
22343 La Palma, Suite #126
Yorba Linda, CA 92687
(714)692-1033 • Fax (714)692-1920
YORBA SYSTEMS
24510 Vista Lampara
Yorba Linda, CA 92687
(714)692-8129 • Fax (714)692-8234
RESELLER INQUIRIES WELCOME!

Customize To Meet Your Exact Needs

If you don't see it, call us we just might have it or at least can get it!

CALL (415) 615-9123

ONTHLY SPECIALS

NOVELL.
Authorized Reseller

Comet Micro VLB 486DX2-66MHz 486DX2-66MHz with 256K Cache

Intel 486DX2-66MHz Processor Installed
Full Size Tower with 250W Power Supply
US Made 486DX2-66MHz 256K System Board
4MB RAM 70ns Installed, Exp. to 32MB on Board
Teac 1.2MB and 1.44MB Floppy Drive
Conner 204MB IDE Hard Disk 256K Cache 12ms
IDE 2 Hard/ 2 Floppy Drive Controller
2 Serial / 1 Parallel / 1 Game Ports
Promise VLB IDE Host Adapter
Dimond Stealth 24 VLB Adapter with 1MB RAM
NEC 4FG 15" .28mm SVGA Monitor 72Hz
Keytronic 101K Enhanced Keyboard
Logitech Mouse Man 400dpi Serial Mouse

$2,850.00

EISA VESA Local Bus System, Please Call

Orchid VESA Local Bus 486-50MHz 486DX-50MHz with 256K Cache

Intel 486DX-50MHz Processor Installed
Full Size Tower with 250W Power Supply
Orchid VLB 486-50MHz w/ 256K Cache System Board
4MB RAM 70ns Installed, Exp. to 32MB on Board
Teac 1.2MB and 1.44MB Floppy Drive
Conner 204MB IDE Hard Disk 256K Cache 12ms
IDE 2 Hard/ 2 Floppy Drive Controller
2 Serial / 1 Parallel / 1 Game Ports
Orchid VLB IDE Host Adptr, 8mbps Access Time
Orchid Fahrenhei VLB SVGA Adaptr with 1MB RAM
Sony CDP 1430 SVGA Monitor .25mm 72Hz
Keytronic 101K Enhanced Keyboard
Logitech Mouse Man 400dpi Serial Mouse

$2,450.00

Customize System, Please Call

Comet Micro ISA 486 33MHz 486DX 33MHz with 256K Cache

Intel 486DX-33MHz Processor Installed
Full Tower Case with 250W Power Supply
NICE 486DX-33MHz w/ 256K Cache System Board
4 MB RAM 70ns, Exp. to 32MB on Board
Teac 1.2MB and 1.44MB Floppy Drive
Maxtor 213MB IDE Hard Disk 15ms
IDE 2 Hard/2 Floppy Drive Controller
2 Serial / 1 Parallel / 1 Game Ports
Orchid Fahrenhei 1280 Plus 1MB RAM
Sampo AlphaScan 14" SVGA 72Hz Monitor
Keytronic 101K Enhanced Keyboard
Logitech Mouse Man 400dpi Serial Mouse

$1,950.00

Micronics Mother Board, Please Call

System Boards

All system board come with CPU & no RAM	
Diamond Computer 486DX, DX2	CALL
Orchid SuperBoard 486 Local Bus 256K	CALL
Micronics 486DX2-66MHz Local Bus 256K	1050
Micronics 486DX 33MHz Local Bus 256K	770
NICE US Made 486DX2-66MHz Super EISA VLB	1300
NICE US Made 486DX Mini EISA VLB 256K	CALL
NICE US Made 486DX ISA VLB 256K Cache	595
Vega US Made 486DX-33/2-66MHz VLB 256K	CALL
Comet 486DX 33MHz ISA 128K Cache	495
Comet 486DLC 33MHz ISA 64K Cache	275
Comet 386 33MHz 128K RAM Cache	195
Comet 386SX 25MHz with CPU	150

Hard Drives

External Drive for Macintosh	CALL
Conner CP3000 40MB 28ms	155
Conner CP30084 84MB 19ms	205
Conner CP30104 120MB 17ms	255
Conner CP30174E 170MB 17ms	295
Conner 30204 204MB 256K Cache 12ms	350
Maxtor LXT7120A 130MB 15ms	265
Maxtor LXT7213A 210MB 15ms	340
Maxtor MXT-7245A 245MB IDE 15ms	395
Maxtor LXT340A 340MB 13ms	540
Maxtor LXT535A 535MB 12ms	850
Maxtor 1.02GB Panther Drive SCSI 13ms	1350
Maxtor 1.7GB Panther Drive SCSI 13ms	1595

Fujitsu Hard Drives: 5 Year Warranty

Fujitsu M2624 520MB IDE 3.5" 11ms	875
Fujitsu M2624 520MB SCSI 3.5" 11ms	875
Fujitsu M2266SA 1.2GB SCSI 5.25" 14ms	1395
Fujitsu M2652S 2.0GB SCSI 5.25" 11ms	2200
Quantum ELS127AT 127MB IDE 15ms	285
Quantum LPS240AT 244MB IDE 256K Cache	385
Quantum Pro 425MB SCSI 64K 14ms	895
Quantum Pro 1.2GB SCSI 1MB Cache 9ms	1550

Floppy Drives

Teac 5.25" 1.2MB Floppy Drive	60
Teac 5.25" 360K Floppy Drive	60
Teac 3.5" 1.44MB Floppy Drive	60
Teac Dual 1.2 & 1.44MB Floppy Drive	139

Power Supplies (kingsPao)

150W XT Size Power Supply	49
200W XT Size Power Supply	59
250W AT Size Power Supply for Desktop	59
230W PS2 Size Power Supply	59
250W AT Size Power Supply for Tower	69
300W AT Size Power Supply for Tower	95

Monitors

12" Samsung Amber Monochrome Monitor	105
14" Amber Monochrome Monitor	115
14" Paper White VGA Monochrome Monitor	135
14" Addonics VGA 640x480 Monitor	245
14" Addonics SVGA 1024x768 .28mm Monitor	299
14" Addonics SVGA 1024x768 .28mm NI Monitor	335
14" ViewSonic 6E SVGA 1024x768 NI Monitor	350
14" Sampo AlphaScan 1024x768 72Hz NI Monitor	385
14" Sony 1430 SVGA Monitor .25mm 72Hz NI Monitor	649
15" Sampo AlphaScan 1024x768 70Hz NI Monitor	495
15" ViewSonic 6FS 1024x768 72Hz NI Monitor	625
15" NEC 4FG 1024x768 .28mm NI Monitor	759
17" Sampo AlphaScan 1024x768 70Hz NI Monitor	820
17" Sony 1604 1024x768 70Hz .25mm NI Monitor	999
17" ViewSonic 7 1280x768 .28mm NI Monitor	999
17" Nanao F550i 1280x1024 .28mm 75Hz Monitor	1075
17" MAG MX17F 1280x768 .26mm NI Monitor	1050
17" NEC 5FG 1280x1024 74Hz .28mm Monitor	1350
20 Sampo AlphaScan 1280x1024 .31mm Monitor	1300
20" ViewSonic 8 1280x1024 .31mm NI Monitor	1650
20" Sony 1936 SVGA Monitor .30mm	2175
21" Toshiba P21CR00 1280x768 .31mm Monitor	2100
21" NEC 6FG 1280x768 74Hz .28mm Monitor	2650

Multimedia

Media Vision - Pro 16 Multimedia System	925
Pro Audio Spectrum 16 Sound Card	179
NEC CDR84 Internal CD-ROM 280ms	550
Sony CDU535 380ms CD-ROM w/ Sony Interface	320
Toshiba CD-ROM 256K Buffer 200ms 330KB/sec.	475
Future Domain 8bit CD-ROM Adapter w/ Driver	70
Creative Lab. Video Blaster	345

Scanners

ScanPlus 300dpi B&W Scanner	350
ScanPlus 600dpi 24bit Color Scanner	650
Umax UC630 600dpi 24bit Flatbed Color Scanner	1150

Printers

Panasonic KXP4450i 11ppm Laser Printer	1095
Panasonic KXP4410 5ppm Laser Printer	649
Panasonic KXP4430 5ppm PCL5 Laser Printer	895
HP LaserJet 4, 600dpi, 2MB, 8ppm Laser Printer	1400
RAM Upgrade Board w/1MB for KXP4420/4450i	105
RAM Upgrade Board w/1MB for KXP4410/4430	125
RAM Upgrade Board w/1MB for HPII/III/P	95
RAM Upgrade Board w/ 1MB for Oki OL400 Laser	95

Tape Backups

Colorado 250MB Ext. Parallel Port Tape Backup	425
Colorado 120/250MB Internal Tape Backup	185/239
Colorado 2.4GB Internal Tape Backup 18MB/ min	1100

Video Adapters

ATI Graphic Vantage 1MB & 400dpi Mouse	205
ATI Graphic Ultra + 1M/2MB & 400dpi Mouse	325/375
ATI Ultra Pro 2MB VRAM & 400dpi Mouse	525
ATI Ultra Pro VESA Local Bus 2MB VRAM	475
Diamond SpeedStar 24x 1MB RAM & HiColor	179
Diamond Stealth 24 VLB 1MB RAM Accelerator	189
Diamond Stealth Pro VLB 1MB/2MB Accelerator	349/449
Diamond Viper VLB 1MB/2MB VRAM Accelerator	395/475
Hercules Graphite 1MB VRAM Accelerator	350
Orchid Celcius VLB 2MB VRAM SVGA Adapter	CALL
Orchid Fahrenhei 1280 24Bit Color 1MB VRAM	230
Orchid Fahrenhei 1280 Plus ISA w/ 1MB RAM	169
Orchid Fahrenhei VLB 1MB Video Adapter	169
Accumos Windows Accelerator 16bit w/ 512K	65
Accumos Windows Accelerator 16bit w/256K	45
Trident 8900 Chip Set 1MB SVGA Adapter	70
#9 GXi Video Adapter	CALL
#9GXE Level 10/11/12 Graphics for Windows	CALL

Input Devices

KeyTronic / Mitsumi 101K Enhanced Keyboard	45/40
Northgate 101 or 102 / Ultra Enhanced Keyboard	79/99
Logitech 3 Button Serial Mouse	45
Logitech 400dpi Serial/Bus Mouse Man	60/70
Microsoft 400dpi Serial/Bus Mouse	75
Summa Sketch II Plus 12x12 w/4 Button & Stylus	269

Controllers & Adapters

2 Serial, 1 Parallel, 1 Game Ports Card	18
IDE 2 Hard/2 Floppy drives Adaptor	18
IDE with 2 Serial, 1 Parallel, 1 Game Ports	30
Kouwell 2S/1P/1G w/ HiSpeed 16550 UART Chip	60
Ultrastor ESDI Controller w/32K Buffer	169
UltraStor 34F VESA Local Bus SCSI Bus Master	275
Adaptec 1522/1542B Kit SCSI Host Adapter	159/259
Adaptec 1742 EISA SCSI 32Bit Adapter Kit	449
Promise IDE W/ 512K Cache Upgradable to 8.5MB	155
Promise IDE W/ 0Mb Cache Upgradable to 16MB	155
Promise SCSI W/ 0MB Cache Upgradable to 16MB	255
Promise IDE VLB Cache Host Adapter	259

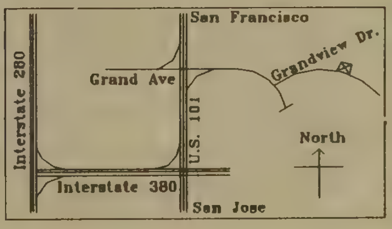
Moderms

Pratical 14,400 V.32 bis External Fax/Modem	395
Intel SatisFAXtion Modem 200 96/24 Fax + Modem	315
Intel SatisFAXtion Modem 400 96/24 Fax + Modem	415
Intel SatisFAXtion Modem 400E 96/144 Ext. Mode	495
Intel SatisFAXtion 14.4 V.32 .42 External Modem	495
GVC 14.400 V.32 V.42 Int./ Ext. Fax/ Modem	250/275
GVC 9600 Baud Modem Int / External	195/205
Complete PC 96/24 Fax/Modem for Windows	119
2400 Baud Modem w/ Software Internal/ External	55/75

2% DISCOUNT FOR CASH PURCHASE **NO SURCHARGE ON CREDIT CARDS**

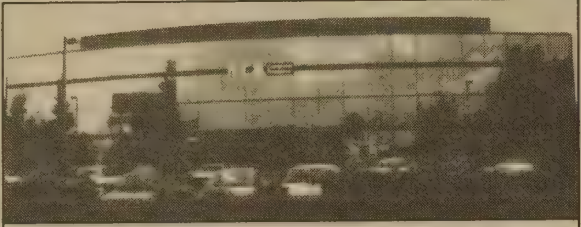
Comet Micro System

1301 Grandview Drive
South San Francisco, CA 94080
Phone: (415) 615-9123 Fax: (415) 615-0287
MON-FRI 9am to 6pm, SAT 10am to 5pm



TERMS & CONDITIONS
Prices subject to change w/o notice
Not responsible for typos/errors
No surcharge on credit cards on advertised prices only
Please call for items not listed
One year warranty on all parts
Three years warranty on labor
Dealer & Quantity pricing available

HARD DRIVE SUPER SOURCE



The largest Selection of Memory Storage Products, Worldwide

RELIABILITY
We only sell the best! BRAND NEW equipment, NO Refubished or Recondioned items.

WARRANTY
*Up to 5 YEARS full manufacturers warranty at NO EXTRA CHARGE**

SATISFACTION
NCA will make sure that the proper assistance is delivered to all our customers for a 100% total satisfaction. GUARANTEED.

PRICE
Due to the backing of specific Vendors and coupled with large quantity orders we are able to pass along the tremendous savings to the end user.

CONTINUED BUSINESS
67% of our business is from repeat and referral customers. We believe our service continues to stem from the personal side of our staff.

▼ SPECIAL HANDLING ▼

CORPORATE ACCOUNTS
Corporate , Educational Institutions, Government Agencies, - ALL Welcome! Our corporate department can meet your needs large or small.

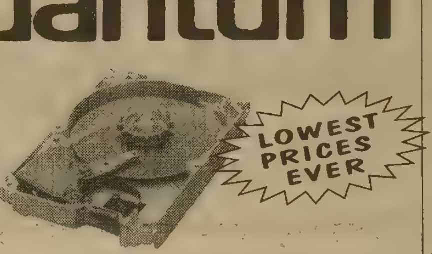
CORPORATE INQUIRES
(408) 522-8672
Mon-Fri 8:30am - 5:30pm PST
or FAX (408) 739-2420

DEALER SUPPORT
Domestic and International departments with dealers network worldwide. We take care of our dealers.

DEALER INQUIRES
(408) 522-8673
Mon-Fri 8:30am - 5:30pm PST

INTERNATIONAL ORDERS
International orders taken via:
FAX (408) 739-2420 *or* CALL (408) 522-8674
MasterCard, Visa, & Wire transfers accepted

Quantum



Brand new with two year factory warranty

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
80MB	GO80	32K	16ms	2.5"	$259
120MB	GO120	32K	16ms	2.5"	$329
160MB	GO160	32K	16ms	2.5"	$429
42MB	ELS42A	32K	19ms	3.5X1"	$139
52MB	LPS52A	64K	11ms	3.5X1"	$149
85MB	ELS85A	32K	17ms	3.5X1"	$189
105MB	LPS105A	64K	<12ms	3.5X1"	$209
120MB	LPS120A	256K	*Fast*	3.5X1"	$319
127MB	ELS127A	32K	17ms	3.5X1"	$249
170MB	ELS170A	32K	17ms	3.5X1"	$279
240MB	LPS240A	256K	*Fast*	3.5X1"	$369
425MB	PD425A	256K	<11	3.5"	$879
525MB	LPS525AT	256K	*FAST*	3.5X1"	$999

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
42MB	ELS42S	32K	19ms	3.5X1"	$169	$279
52MB	LPS52S	64K	11ms	3.5X1"	$199	$309
85MB	ELS85S	32K	17ms	3.5X1"	$199	$309
105MB	LPS105S	64K	<11ms	3.5X1"	$249	$359
120MB	LPS120S	256K	*Fast*	3.5X1"	$289	$399
127MB	ELS127S	32K	17ms	3.5X1"	$269	$379
170MB	ELS170S	32K	17ms	3.5X1"	$299	$409
240MB	LPS240S	256K	*Fast*	3.5X1"	$389	$499
425MB	PD425S	256K	<11	3.5"	$879	$989
525MB	LPS525	256K	*Fast*	3.5"X1"	$899	$999
700MB	PD700	256K	<10	3.5"	$1199	$1299
1.2GB	P1225	512	<10	3.5"	$1499	$1549

Seagate

Factory new with full factory warranty

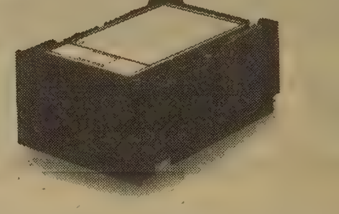
IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
42MB	ST351	32K	19ms	3.5X1"	$139
107MB	ST3120	64K	15ms	3.5X1"	$229
130MB	ST3144A	64K	15ms	3.5X1"	$259
240MB	ST3283A	256K	12ms	3.5X1"	$449

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
240MB	ST3283N	256K	12ms	3.5X1"	$469	$579
670MB	ST4766N	256K	14ms	FH	$1139	$1339
670MB	ST4767N	256K	11ms	FH	$1399	$1599
1.2GB	ST11200N	256K	10ms	3.5"	$1499	$1599
1.2GB	ST41200N	256K	14ms	FH	$1369	$1569
1.6GB	ELITE-I	X	11ms	FH	$1899	$2099
1.6GB	ST41651	256K	14ms	FH	$1749	$1949
2.1GB	ST42100N	256K	14ms	FH	$1969	$2169
2.4GB	ELITE-II	X	11ms	FH	$2599	$2799
3.4GB	ELITE-III	X	11ms	FH	$3799	$3999

MICROPOLIS



Brand new with 5-year factory warranty

SCSI-II / *Fast* SCSI-II

CAPACITY	M/N	RPM	SPEED	SIZE	INT.	EXT.
340MB	MC1684	3600	14ms	HH	$1099	$1209
670MB	MC1624	3600	14ms	HH	$1149	$1259
1.2GB	MC2112	5400	10ms	3.5"	$1529	$1639
1.2GB	MC1598	3600	15ms	FH	$1399	$1599
1.5GB	MC1528	3600	15ms	FH	$1799	$1999
1.6GB	MC1908	5400	11ms	FH	$1899	$2099
2.0GB	MC1548	3600	14ms	FH	$1949	$2149
2.4GB	MC1924	5400	11ms	FH	$2699	$2899
3.6GB	MC1936	5400	11ms	FH	$3999	$4199

Maxtor

Featuring **213MB IDE** **$299**

Brand new with one year factory warranty

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
80MB	2580A	32K	16ms	2.5"	$219
120MB	25120A	32K	15ms	2.5"	$329
80MB	7080A	32K	15ms	3.5X1"	$199
130MB	7120A	64K	15ms	3.5X1"	$215
213MB	7213A	64K	15ms	3.5X1"	$299
245MB	7245A	64K	15ms	3.5"	$319
340MB	LXT340A	64K	15ms	3.5"	$559
535MB	LXT535A	64K	12ms	3.5"	$879

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
130MB	7120S	64K	15ms	3.5X1"	$239	$349
213MB	7213S	64K	15ms	3.5X1"	$349	$459
340MB	LXT340S	64K	15ms	3.5"	$589	$699
535MB	LXT535S	64K	12ms	3.5"	$929	$1039
540MB	MAGIK540	256K	8ms	3.5X1"	$1049	$1159
1.2GB	MAGIK1240	512K	8ms	3.5"	$1599	$1699
1.2GB	PO12S	256K	13ms	FH	$1239	$1439
1.7GB	P117	256K	13ms	FH	$1479	$1679

HEWLETT PACKARD

Brand new with 5-year factory warranty

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
1.2GB	C2247	256K	3.5"	10ms	$1599	$1699
1.2GB	C97558	256K	FH	13ms	$1599	$1799
1.8GB	C3009	256K	FH	11.5ms	$2689	$2889
2.0GB	C3010	256K	FH	11.5ms	$2899	$3099

THE NEW NCA BUILDING CORNER OF **LAWRENCE EXPWY & KIFER RD**

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.
1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA
PERIPHERALS

CORPORATE,Gov't, & Univ. Accts	Dealers Accts	FAX for PO S
408 522-8672	**408 522-8673**	**408 739-2420**

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles.
Full Installation Center for all our Hard Drives.
We Ship World Wide.
Dealers Qty Pricing is Available.

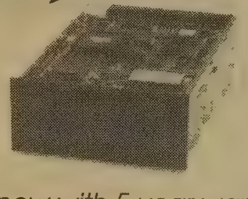
Bechtam Verification To Prevent Fraud

Price and Availability are subject to change. All logos are property of their respective companies.

©1993 INVERSE CORPORATION

HARD DRIVE SUPER SOURCE

FUJITSU



Brand new with 5-year warranty

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
330MB	M2622T	64K	12ms	3.5"	$599
425MB	M2623T	64K	12ms	3.5"	$839
520MB	M2624T	64K	12ms	3.5"	$859

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
425MB	M2623FA	240K	11ms	3.5"	$829	$939
520MB	M2624FA	240K	11ms	3.5"	$859	$969
1.2GB	M2694SA	256K	10ms	3.5"	$1499	$1599
1.2GB	M2266SA	256K	14ms	FH	$1199	$1399
2.0GB	M2652SA	256K	11ms	FH	$2099	$2299
2.4GB	M2654SA	256K	12ms	FH	$2499	$2699

CONNER

Brand new with one year factory warranty

Featuring **60MB IDE CP30064** **$149**

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
40MB	CP3000	32K	25ms	3.5X1"	$135
80MB	CP30084	64K	19ms	3.5X1"	$185
120MB	CP30104H	32K	19ms	3.5X1"	$215
170MB	CP30174E	64K	17ms	3.5X1"	$255
212MB	CP30204	256K	12ms	3.5X1"	$319
250MB	CP30254	64K	14ms	3.5"	$349
540MB	CP3544	256K	12ms	3.5"	$889
540MB	CP30544	256K	<12ms	3.5X1"	$CALL

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
40MB	CP3040	32K	25ms	3.5X1"	$159	$269
80MB	CP30080	32K	19ms	3.5X1"	$219	$329
170MB	CP30170	64K	17ms	3.5X1"	$289	$399
212MB	CP30200	256K	12ms	3.5X1"	$369	$479
540MB	CP3540	256K	12ms	3.5"	$939	$1049

WESTERN DIGITAL

Brand new with 2-year factory warranty

IDE **Caviar Series**

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
80MB	WD280	64K	16ms	3.5X1"	$189
120MB	WD2120	64K	<14	3.5X1"	$249
170MB	WD2170	64K	<15	3.5X1"	$269
212MB	WD2200	64K	12ms	3.5X1"	$319
250MB	WD2250	64K	14ms	3.5X1"	$359
340MB	WD2340	64K	12ms	3.5X1"	$479

TOSHIBA

BEST VALUE *Superior Quality and Value*

Brand new with 5-year factory warranty

SCSI-II

CAPACITY	M/N	CACHE	SPEED	SIZE	INT.	EXT.
877MB	MK438FB	512K	12ms	3.5"	$1059	$1169
1.2GB	MK538FB	512K	12ms	3.5"	$1399	$1499

HITACHI®

High-End Storage Solutions

SCSI-II / ESDI*

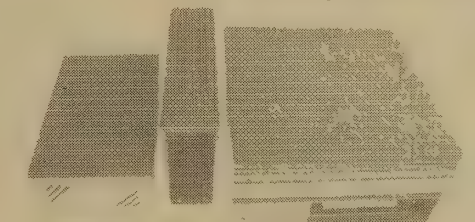
CAPACITY	M/N	RPM	SIZE	TYPE	INT.	EXT.
1.1GB	DK315C-11	5400	3.5"	*FAST* SCSI-2	$1699	$1899
1.4GB	DK315C-14	5400	3.5"	*FAST* SCSI-2	$2099	$2299
1.5GB	DK516-15*	3600	FH	ESDI	$2199	N/A
1.6GB	DK516C-16	3600	FH	SCSI-2	$2199	$2399
3.7GB	DK517-37	5400	FH	*FAST* SCSI-2	$3999	$4199

NCA's High Quality

EXTERNAL DRIVES

For MAC, SUN, NeXT, and IBM Compatibles

Complete with Cables, and formatting Software for Mac



EXTERNAL HARD DISK DRIVES

42MB TO 3.6GB

EXTERNAL TAPE BACK-UP DRIVES

250MB TO 8GB

EXTERNAL REMOVABLE DRIVES

44MB / 88MB / 90MB / 150MB

EXTERNAL CD ROM DRIVES

EXTERNAL. OPTICAL DRIVES

EXPRESS EXCHANGE

OPTIONAL SERVICE

No more down time...

If your covered peripheral should fail within the period, NCA will replace or repair the unit within 8 working hours.*

EXTENDED WARRANTY

OPTIONAL SERVICE

When one year is just not good enough.

Extend your warranty with NCA's EXTENDED WARRANTY OPTIONAL PLAN

FULL SERVICE CENTER

- ❖ Complete installation center for PC and MAC
- ❖ Same Day Service
- ❖ Mac Hard Drive and Memory installation center

MAC Memory installation **$15** 2Hr Service

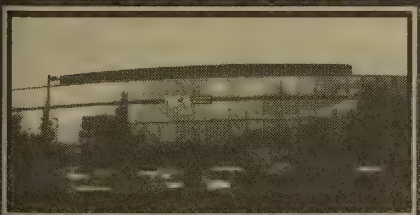
Hard Drive **$40** Same Day Installation

*Optional Plan must be purchased within 30 days of original purchase date. Please visit us for further details.

NCA

YOUR HARD DRIVE SUPER SOURCE

THE NEW NCA BUILDING CORNER OF LAWRENCE EXPWY & KIFER RD



NCA PERIPHERALS

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086

(408) 739-9010

CORPORATE,Gov't, & Univ. Accts	Dealers Accts	FAX for PO S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)

Gov't, University, & Approved Corporate P.O.s Welcome

CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS

All Items are Brand New with Full Factory Warranty.

Tech Support for MAC and IBM Compatibles.

Full Installation Center for all our Hard Drives.

We Ship World Wide.

Dealers Qty Pricing is Available.

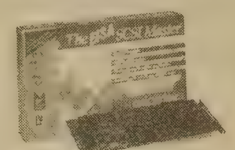
Electronic Verification To Prevent Fraud

©1993 INVERSE CORPORATION

CONTROLLERS SUPER SOURCE

SCSI CONTROLLERS

adaptec



SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
1522	16 BIT 7HD/2FD KIT	$159
1542BK	16 BIT BUS MASTER 7HD/2FD KIT	$259
1542B+	1542BK+COREL SCSI	$329
1640	MICROCHANNEL FOR PS/2, 7HD	$329
1742	EISA KIT, 32 BIT, 7HD/2FD	$439

DATA TECHNOLOGY CORPORATION

3290AS	EISA, 32-BIT SCSI Caching W/512K (up to 4MB)	$479

PROMISE TECHNOLOGY INC.

<0.3 ms, *Fast, Uses Standard 256K, 1X9, 4X9 Simms Modules*

DC2040	CACHING 16 BIT W/0MB (UP TO 16M)	$259

Intelligent

16-BIT, 7HD/2FD SCSI CARD	$119

aaa always technology

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
IN2000	16 BIT 7HD/2FD "Easest to use"	$179
AL1000	SCSI *TO* PARALLEL W/BACKUP SOFTWARE	$169

FUTURE® DOMAIN

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
MC600	*FOR* PS/2, CARD	$179
TMC850	8 BIT CARD W/BIOS	$59
TMC850	8 BIT W/O BIOS	$39
TMC1670	KIT 2HD/2FD	$159
TMC1680	16 BIT CARD	$169
TMC1680	16 BIT, 7HD/4FD KIT	$249
TMC7000	32 BIT, EISA KIT	$299

TRANTOR®

FULL KITS W/DRIVERS FOR CD-ROM/OPTICAL... ETC.

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
T128F	8 BIT, HIGH PERF., 7HD/4FD	$119
T130	8 BIT, HIGH PERF., 7HD	$79
T160	16 BIT, HIGH PERF.	$CALL
T228	MICROCHANNEL, 7HD	$159
T260	16-BIT, MICROCHANNEL	$CALL
T338	PARALLEL PORT to SCSI ADAPTER	$119
T348	PARALLEL PORT to SCSI PLUS	$179
MBoxDOS S/W to run music CDs on CD ROMS		$39
TapeMate S/W for Tape Back-up		$59

UltraStor

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
14F	FD/HD (10MB/SEC) KIT	$229
24F	EISA, 64K, *Fast* (33MB/SEC)	$389
34F	VESA Local Bus Controller	$295

IDE CONTROLLERS

STANDARD IDE

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
200	2HD/2FD CONTROLLER W/CABLES	$15
211	2HD/2FD W/2SERIAL, 1PAR, 1GAME	$25
NCL53	SMART CONT. W/BIOS EASY INSTALL	$49
222	2HD/2FD/UP TO 2.88MB WITH I/O	$39
223	2HD/2FD for VESA LOCAL BUS I/O	$79

PROMISE TECHNOLOGY INC.

.3ms *Fast*

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
DC2032	CACHING WITH I/O, 4HD/3FD	$189

UltraStor

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
15C	CACHING (UP TO 8MB), 2HD, 2FD	$199

gsi™

- ◆ Easy Set-up
- ◆ High Performance
- ◆ Plug & Play

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
18V	CO-EXIST, HIGH PERF.	$59
21V	2HD (WITH BIOS), 4FD (UP TO 2.88M)	$69

ETHERNET ADAPTERS

Kodiak TECHNOLOGY

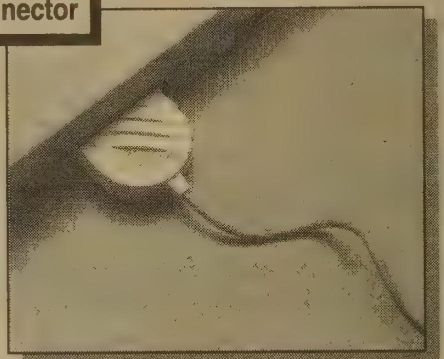
#1 Source For Ethernet

MADE IN THE USA

Novell Labs Tested & Approved

- Third Generation Technology
- Five-Year Warranty
- Toll-Free Technical Support
- CHKNET™ Diagnostics Software

New KODIAK NotePort™ Connector



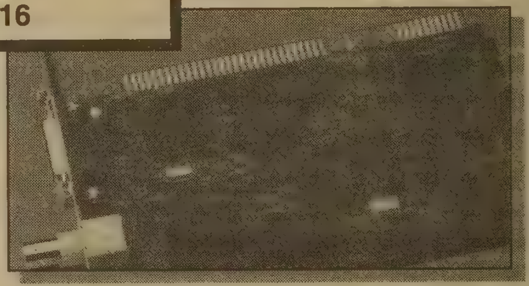
Features

- Small Form Factor
  - Increased mobility
- Pre-Built Software drivers
  - One-step installation
  - Novell-certified
- Flexible cable to desk Unit
  - Less stress on laptop motherboards
  - Easier connect/disconnect
  - Standard parallel port pass-through
- Built-in power Supply
  - No "brick" transformer to carry
- Supports both Thin Coax and 10Base-T
  - Flexibility in network topology

$289

KODIAK - 16

16-Bit LAN Adapter Cards For Thick And Thin Coax



$109

5-PACK $439

KODIAK - 16

16-Bit LAN Adapter Cards For 10BaseT

$109

5-PACK $439

THE NEW NCA BUILDING CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086

(408) 739-9010

NCA PERIPHERALS

CORPORATE, Gov't. & Univ. Accts	Dealers Accts	FAX for PO'S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)

Gov't, University, & Approved Corporate P.O.s Welcome

CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS

All Items are Brand New with Full Factory Warranty.

Tech Support for MAC and IBM Compatibles

Full Installation Center for all our Hard Drives

We Ship World Wide

Dealers Qty Pricing is Available

Electronic Verification To Prevent Fraud

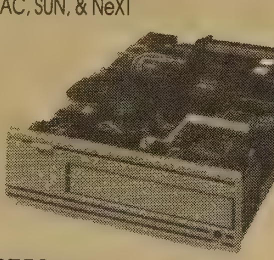
©1993 INVERSE CORPORATION

TAPE BACK-UP SUPER SOURCE

ARCHIVE

for IBM Compatibles, MAC, SUN, & NeXT

The BEST name in SCSI Back-up Drives



VIPER

2150
- ◆ 250MB VIPER
- ◆ 6MB/MIN.

INT.	EXT.
$459	$559

2525
- ◆ 525MB VIPER
- ◆ 6MB/MIN.

INT.	EXT.
$679	$779

ANACONDA 2750
- ◆ 1.6GB
- ◆ 36MB/MIN
- ◆ SCSI-2

INT.	EXT.
$899	$999

PYTHON

4324 TURBO PYTHON
- ◆ 4GB DAT 4mm
- ◆ 1MB Cache Buffer

INT.	EXT.
$1399	$1499

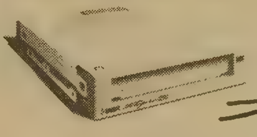
4320NT
- ◆ 2.0GB DAT 4mm
- ◆ 11MB/MIN.

INT.	EXT.
$1149	$1249

4542NT
- ◆ 4-8GB DAT 4mm
- ◆ 11MB/MIN.

INT.	EXT.
$1399	$1499

IOMEGA tape 250



RUNS OFF FLOPPY PORT
- ▶ 250MB Tape Back-up
- ▶ fits Standard 3.5" floppy bay
- ▶ Reads QIC Tape and Irwin tapes
- ▶ Central Point Software
- ▶ Windows Support

Tape 250 Insider $209

EXTERNAL W/CARD $329

EXTERNAL TAPE 250 PARALLEL PORT $429

IOMEGA 250MB Formatted tapes
Single ....$29 **3Pack $79**

EXABYTE®

SUN compatible 8mm SCSI back up system

SCSI-8mm

CAPACITY	MODEL	SIZE	INT.	EXT.
2.2GB	EXB-8200	FH	$1619	$1949
2.2GB	EXB8205	HH	$1849	$2049
5.0GB	EXB-8500	FH	$2649	$2899
5.0GB	EXB-8505	HH	$2799	$2999

HEWLETT PACKARD

Setting the Standards

SCSI 4mm DAT

CAPACITY	MODEL	INT.	EXT.
2.0GB	35470 DAT	$1149	$1249
4-8GB	35480 DAT	$1299	$1399

WangDAT™

SCSI QIC-Format

CAPACITY	MODEL/TYPE	INT.	EXT.
250MB	5150 1/4" SCSI	$469	$569
525MB	5525 1/4" SCSI	$679	$779

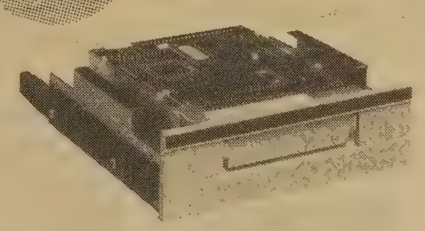
SCSI 4mm DAT

CAPACITY	MODEL/TYPE	INT.	EXT.
2.0GB	3100 DAT	$1149	$1249
4.0GB	3200 DAT	$1249	$1349

TAPE CARTRIDGES

CAPACITY	MODEL/TYPE	SINGLE	5-PACK
120MB	QD 2120	$18.95	$90.00
250MB	QD 6250	$28.95	$120.00
525MB	QD-6525	$33.95	$155.00
2.0GB	4mm DAT 90m	$19.95	$85.00
4.0GB	8mm EXABYTE	$17.95	$79.95

COLORADO MEMORY SYSTEMS INC.

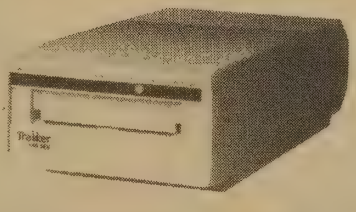


RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INT.
120MB	DJ10/IBM COMPATIBLE	$159
250MB	DJ20/IBM COMPATIBLE	$215

EXTERNAL KIT WITH CARD AND CABLES	$109
EXTERNAL TAPE PORT	$39
FC-10 TAPE CONTROLLER, WITH CABLES	$89
FC-15 HIGH PERFORMANCE 16-BIT CONTROLLER	$189

Trakker™



PARALLEL PRINTER PORT EXTERNAL TAPE BACK-UP SYSTEMS

RUNS OFF PARALLEL PRINTER PORT

CAPACITY	MODEL/TYPE	EXT.
120MB	TRAKKER 120	$359
250MB	TRAKKER 250	$409

IRWIN

An Archive® Company

RUNS OFF FLOPPY PORT

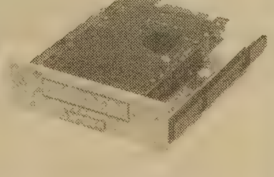
CAPACITY	MODEL/TYPE	INT.
120MB	ARC120	$159
250MB	ARC250	$209

PARALLEL PRINTER PORT ***EXTERNAL*** TAPE BACK-UP

RUNS OFF PARALLEL PRINTER PORT

CAPACITY	MODEL/TYPE	EXT.
120MB	AccuTRAK 120	$379
250MB	AccutRAK 250	$439

SUMMIT™ MEMORY SYSTEMS INC.



WITH CENTRAL POINT BACKUP SOFTWARE

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INT.
250MB	SE-250	$219

BACKUP SOFTWARE

DESCRIPTION	PRICE
Sytos Plus™ for Adaptec	$99

NovaStor

BEST BACK UP SOFTWARE

DESCRIPTION	PRICE
NovaBack for DOS	$99
NovaBack for OS/2	$149
NovaNet-Server Based Software (up to 100 users)	$579

THE NEW NCA BUILDING CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA PERIPHERALS

CORPORATE Gov't & Univ. Accts	Dealers Accts	FAX for PO'S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles.
Full Installation Center for all our Hard Drives.
We Ship World Wide
Dealers Qty Pricing is Available.

Electronic Verification To Prevent Fraud

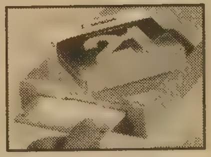
©1993 INVERSE CORPORATION

REMOVABLES SUPER SOURCE

FLOPTICALS

IOMEGA

21MB Floptical Drive



floptical

MAC Version

INCLUDES:
- External 3.5" 21MB Floptical
- One Floptical Media
- Cables
- Software for MAC

$399

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ......$19.99 5-PACK......$89.99

PC Version

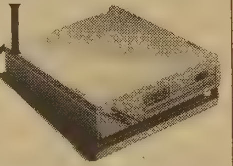
INCLUDES:
- IOMEGA 21MB 3.5" Floptical
- One Floptical Media
- Host adapter SCSI 8-bit
- Cables
- Software for PC

INTERNAL	EXTERNAL
$359	$429

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ......$19.99 5-PACK......$89.99

REMOVABLES

BERNOULLI



- SCSI Interface
- Removable Cartridges
- 18ms Acces time
- 150MB, 105MB, 65MB, 35MB Capacity

BERNOULLI MULTI-DISK™ 150

PC Version
- Ext. Multi-Disk 150™
- 150MB Cartridge
- Controller & S/w

$799

MAC Transportable
- Ext. Multi-Disk 150™
- 150MB Cartridge
- MAC Software

$799

90MB BERNOULLI REMOVALBE
PC VERSION ......$689 MAC Transportable ..$529

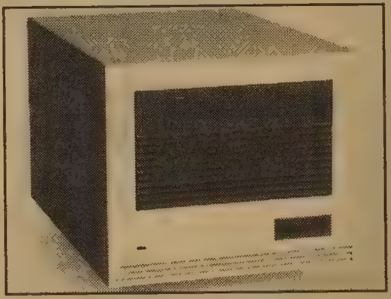
BERNOULLI CARTRIDGES	SINGLE	3-PACK
65MB	$79	$219
90MB	$159	$439
105MB	$109	$289
150MB	$159	$429

OPTICALS

Multifunction Magento-Optical Disk Drive for 1-Gbyte and 650-Mbyte Rewritable and WORM Disk Cartridges, With up to 4-Mbytes Read/Write cache

Maxoptix™

- Unlimited Data Storage
- External SCSI Subsystem
- One year factory warranty
- 25-Year life of Glass Media
- Embedded SCSI/SCSI-2
- Data Transfer of up to 13.2Mbit/Sec.
- Ultimate Back-up for NOVEL (Ready-to-Boot Backup)



TAHITI IIM - Multifunction
- 1MB Read/WriteCache
- External SCSI
- 35ms

$2799

TAHITI IIM - Multifunction
- 4MB Read/Write Cache
- External SCSI
- 35ms

$2999

1GB Cartridge Glass/Poly $199

RICOH

128Mbyte, 3.5" Rewritable Optical Disk Drive
- SCSI Optical
- 35ms Access Time
- 3.5" Media 128Mbyte
- *for* MAC or IBM

INTERNAL	EXT. W/CART.
$1049	$1199

HYPERSPACE
- 5.25" Optical Cart.
- 650 Mbyte Rewrtiable
- 3600 RPM
- SCSI Optical

INTERNAL	EXTERNAL (no cart.)
$2299	$2549

RICOH OPTICAL CARTRIDGES

CAPACITY	SINGLE	5-PACK
128MB	$49	$239
128-Optical Lens Cleaner	$29	$139
650MB	$145	$699

FUJITSU

128Mbyte, 3.5" Rewritable Optical Disk Drive
- M2511A
- SCSI 3.5"X1"
- Fits in floppy slot
- 30ms Speed

$1049

REWRITABLE OPTICAL CARTRIDGES

CAPACITY	SINGLE	5-PACK
128MB	$49	$239
128-Optical Lens Clearner	$29	$139

COREL SCSI SOFTWARE KIT

COREL SCSI APPROVED PRODUCT

- 8 BIT SCSI CARD
- COREL SCSI DRIVERS
- COREL SCSI UTILITIES
- COREL CD-AUDIO for WINDOWS
- COREL TAPE BACKUP
- SITBACK SOFTWARE
- SCSI TOOLS for WINDOWS

$99

THE NEW NCA BUILDING CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA PERIPHERALS

CORPORATE Gov't, & Univ. Accts	Dealers Accts	FAX for PO'S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles.
Full Installation Center for all our Hard Drives.
We Ship World Wide.
Dealers Qty Pricing is Available.

AMERICAN EXPRESS DISCOVER

Electronic Verification To Prevent Fraud

Price and Availability are subject to change. All logos are property of their respective companies.

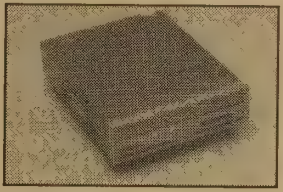
©1993 INVERSE CORPORATION

SyQuest TECHNOLOGY SUPER SOURCE

- ▶ Removable Drive Cartridge, 44MB or 88MB
- ▶ Unlimited Storage
- ▶ 20ms Access speed
- ▶ SCSI Embedded
- ▶ for MAC of IBM
- ▶ 2 Year Warranty

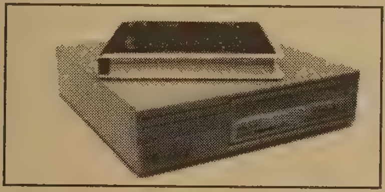
SyQuest TECHNOLOGY

☐BARE DRIVES



44MB SQ555......................$279
88MB SQ5110.....................$349
NEW! SQ5110C $419
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

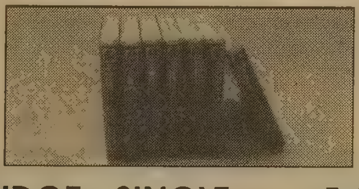
☐EXTERNAL DRIVES



- ▶ EXTERNAL DRIVE
- ▶ CARTRIDGE
- ▶ STANDARD POWER CORD
- ▶ EXTERNAL CABLE
- ▶ INSTALLATION SOFTWARE (for Mac)

44MB SQ555................$399
88MB SQ5110..............$499
NEW! **SQ5110C** $589
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

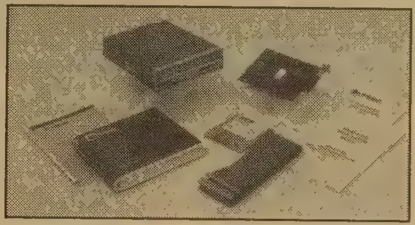
☐CARTRIDGES



CARTRIDGE	SINGLE	5-PACK
44MB	$67	$320
88MB	$99	$489

8-BIT CONTROLLER & SOFTWARE....$59

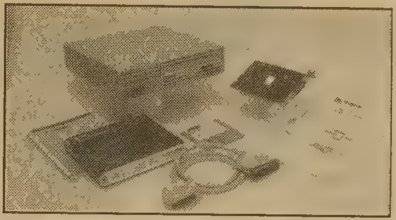
☐INTERNAL 8-BIT KITS



- ▶ INTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ 8-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Int. 8-BIT........$389
88MB SQ5110 Int. 8-BIT $489
NEW! SQ5110C 8-BIT Int. 8-Bit ..$559
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐EXTERNAL 8-BIT KITS



- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ 8-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

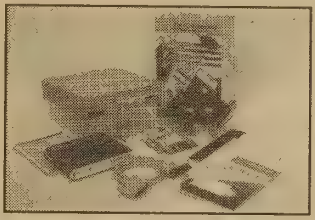
44MB SQ555 Ext. 8-BIT.......$459
88MB SQ5110 Ext. 8-BIT.....$559
NEW! SQ5110 Ext. 8-Bit..............$639
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐INTERNAL 16-BIT KITS

- ▶ INTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ **adaptec** 1522 16-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Int.16Bit $489
88MB SQ5110 Int.16Bit $589
NEW! SQ5110C Int.16Bit............$649
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐EXTERNAL 16-BIT KITS

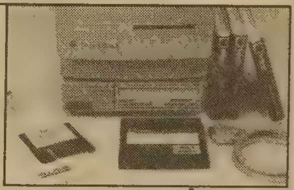


- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ **adaptec** 152216-BIT SCSI CONTROLLER
- ▶ CABLES
- ▶ INSTALLATION SOFTWARE

44MB SQ555 Ext. 16-Bit $559
88MB SQ5110 Ext. 16-Bit ...$659
NEW! SQ5110C Ext.16-Bit..........$739
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

☐FOR ALL MACINTOSH MODELS*

Complete, Preformatted, Plug & Play External Kits.



- ▶ EXTERNAL SYQUEST DRIVE
- ▶ CARTRIDGE
- ▶ CABLES (choice of 50C-Mac or 50C-50C)
- ▶ STANDARD POWER CORD
- ▶ FORMATTING SOFTWARE ($39 Value)

*Macintosh Plus or above

44MB SQ555................$399
88MB SQ5110..............$499
NEW! **SQ5110C** $589
READS & WRITES TO BOTH 44MB & 88MB CARTRIDGES

THE NEW NCA BUILDING. CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA
PERIPHERALS

CORPORATE,Gov't. & Univ. Accts	Dealers Accts	FAX for P.O.S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles.
Full Installation Center for all our Hard Drives.
We Ship World Wide.
Dealers Qty Pricing is Available.

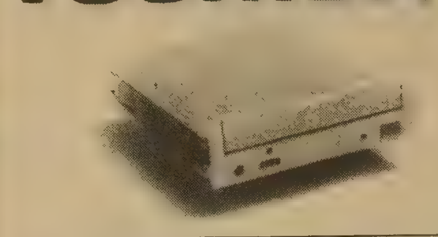
Electronic Verification to Prevent Fraud

©1993 INVERSE CORPORATION

6

CD ROM SUPER SOURCE

TOSHIBA



XM-3401B

Fastest SCSI CD ROM Ever!!

- ▶ 200ms, 330KB/SEC.
- ▶ SCSI CD-ROM
- ▶ MULTI-SPIN/MULTI-SPEED
- ▶ 256K CACHE

INTERNAL	EXTERNAL
$479	$589

8 BIT CD CONTROLLER KIT (Controller W/CD Driver S/W)	$79
16 BIT CD CONTROLLER KIT (Controller W/CD Driver S/W, by adaptec)	$159

MITSUMI

- ▶ MULTIMEDIA CD ROM
- ▶ INCLUDES 8 BIT CARD
- ▶ MPC READY / 350ms

$199

NEC

- ▶ 280ms
- ▶ Multi-speed

CDR-84 *INTERNAL*	**$559**
CDR-74 *EXTERNAL*	**$599**
NEC MAC SOFTWARE KIT	$79
NEC IBM DRIVER KIT WITH 8 BIT CARD	$89

MEDIA VISION

PRO 16 UPGRADE KIT MULTIMEDIA SYSTEM

- ▶ PRO AUDIO SYSTEM 16
- ▶ CDR-84
- ▶ CD SOFTWARE: Carmen San Diego, Compton's Encyclopedia, Lotus 123, Kings Quest, MacroMind, Nautilus.

$899

FUSION INTERNAL 16

- ▶ 16 bit Stereo Card
- ▶ Internal CD ROM
- ▶ Amplified Stereo Speakers Bundled Software (see below)

$499

FUSION EXTERNAL 16

- ▶ 16bit Stereo Sound Card
- ▶ NEC External CD-ROM
- ▶ Amplified Stereo Speakers
- ▶ Bundled Software: Compton's Encyc., Carmen Sandiego, Ultima Wing Commander II

$529

PRO AUDIO SPECTRUM 16 .... $189

SOUND GALAXY MULTIMEDIA UPGRADE KIT

- ▶ SOUND GALAXY NX PRO STEREO CARD
  SUPPORTS SB PRO, COVEX SPEECH, ADLIB, & DISNEY SOUND
- ▶ INTERNAL MITSUMI CD ROM
- ▶ MICROPHONE
- ▶ STEREO SPEAKERS
- ▶ CD ROM SOFTWARE:
  (LOOM, CARMEN SAN DIEGO, DICTIONARY... ETC.)

$449

COREL SCSI SOFTWARE KIT

- ▶ 8 BIT SCSI CARD
- ▶ COREL SCSI DRIVERS
- ▶ COREL SCSI UTILITIES
- ▶ COREL CD-AUDIO for WINDOWS
- ▶ COREL TAPE BACKUP
- ▶ SITBACK SOFTWARE
- ▶ SCSI TOOLS for WINDOWS

$99

TEXEL

- ▶ SCSI CD
- ▶ *FAST* 265ms
- ▶ Multi-Spin
- ▶ DM-3024
- ▶ INTERNAL W/ CADDY

$389

- ▶ DM-5024
- ▶ EXTERNAL W/CADDY

$469

8 BIT CD CONTROLLER KIT (Controller W/CD Driver S/W)	$69
16 BIT CD CONTROLLER KIT (Controller W/CD Driver S/W, by adaptec)	$159

SONY

- ▶ 31A CD ROM
- ▶ CONTROLLER CARD

$279

- ▶ 31A CD ROM
- ▶ CONTROLLER CARD
- ▶ 5 CD ROM TITLES

$399

CREATIVE
CREATIVE LABS, INC

▶ SOUND BLASTER PRO BASIC	$149.99
▶ SOUND BLASTER PRO w/MIDI	$179.99
▶ SOUND BLASTER 16BIT	$249.99

MULTIMEDIA UPGRADE INTERNAL KIT

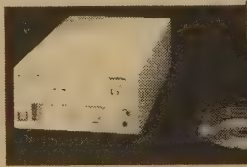
- ▶ CD ROM, SOUND BLASTER PRO
- ▶ SECLECTED SOFTWARE

$519

PIONEER®

High Speed CD-ROM MiniChanger, featuring QUADRASPIN™ 612Kbyte/sec

- ▶ External SCSI/SCSI-2 Subsystem
- ▶ 300ms
- ▶ 6 CD ROM Magazine
- ▶ FAST 612KBytes/Sec
- ▶ Software for MAC or IBM



DRM-604X

$1299

GALLANT SOUND CARD

- ▶ SC-3000 SOUND CARD
- ▶ DYNAMIC STEREO SPEAKERS
- ▶ MICROPHONE
- ▶ SOFTWARE: STUNTS™ & GALLANT MASTER

$99

CD ROM TITLES

20% Off All CD-ROM Titles

Amanda Stories	$
American Bus, Phone Book	$
Annable's Dreams	$
Animals 1.0	$
Battle Chess Enhanced	$
Beauty & the Beast	$
Bring the World to Your Senses	$
Business & Economic Atlas	$
Carmen San Diego	$
CD Story time	$
CIA World FactBook	$
Chessmaster 3000	$
Composer Quest	$
Compton's MPC Encyclopedia	$1
Corporate Snapshots	$
Desert Storm	$
Dictionary of the Living World	$
DTP Pro	$
Family Choice Britanica	$
Family Doctor	$
Family Education Collections	$
Geovision	$
Great Cities of the World Vol.1	$
Great Cities of the World Vol.2	$
International Graphics Library	$
Guiness MPC Disc of Records	$
Jets & Props	$
Jones in the Fast Lane	$
King's Quest V	$
Library of the Future 1st	$
Loom	$
Lotus 1-2-3	$1
MacMillan Dic. for Dictionary	$
MacroMind Action (no Manual)	$
Magazine Rack	$
Marketing Master 1992	$
Mayo Clinic Family Health	$
Mavis Teacher Typing	$
Media Clips - 4 Pack	$
Micropross Collection on CD	$
Microsoft Bookshelf	$
Microsoft Works	$
Monkey Island	$
Ocean Digital Imagery Vol.1	$
Ocean Imagery	$
Mixed Up Mother Goose	$
PC-SIG 9th Edition	$
PC-SIG 10th Edition	$
Peter and the Wolf	$
People at leisure	$
Playing with Language English	$
Playing with Language French	$
Playing with Language German	$
Playing with Language Japanese	$
Playing with Language Spanish	$
Publish it 2.0	$
Reference Library	$
Secret Weapons of Luftwaffa	$
Sherlock Holmes Consulting Dat.	$
So Much Shareware I	$
So Much Shareware II	$
Stellar 7	$
TIME Almanac 1991	$
Time Table of History	$
Toolworks Groliers New Encyclopedia	$
Total Baseball	$
USA Wars: Civil Wars	$
USA Wars: Korea	$
USA Wars: Vietnam	$
US Atlas/ World Atlas	$
US Atlas & Automap	$
US History	$
Vital Signs	$1
Wild Places	$
Wing Commander & Secret Miss.	$
Wing Commander & Ultima V	$
World Atlas v3.2	$
World View	$

... and Much, Much More.

CD ACCESSORIES

CADDY	$8.99
AMPLIFIED Computer Speaker System SS100	$19.99
AMPLIFIED Computer Speaker System CS150	$22.99
AMPLIFIED Computer Speaker System CS550	$38.99
Audio Cables	$Call

THE NEW NCA BUILDING CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA PERIPHERALS

CORPORATE Gov't, & Univ. Accts	Dealers Accts	FAX for PO'S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles
Full Installation Center for all our Hard Drives
We Ship World Wide
Dealers Qty Pricing is Available.

AMERICAN EXPRESS DISCOVER MasterCard VISA
Electronic Verification To Prevent Fraud

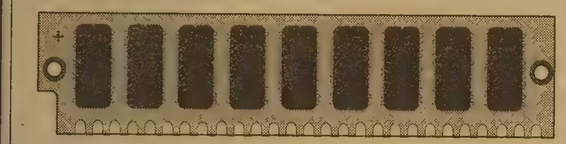
Price and Availability are subject to change. All logos are property of their respective companies.

©1993 INVERSE CORPORATION

MEMORY SUPER SOURCE

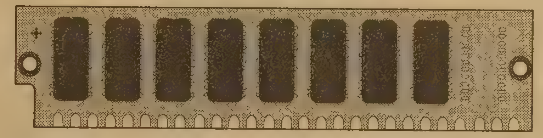
MEMORY SIMMS

IBM COMPATIBLE



256X9	80ns	3Chip	$12.99
1MBX9	80ns	3Chip	$29.99
1MBX9	80ns	9Chip	$32.99
1MBX9	70ns	3Chip	$31.99
1MBX9	70ns	9Chip	$34.99
1MBX9	60ns	3Chip	$34.99
1MBX9	60ns	9Chip	$37.99
4MBX9	80ns	9Chip	$Call
4MBX9	70ns	9Chip	$Call
4MBX9	60ns	9Chip	$Call
16MBX9	70ns	9Chip	$659.99

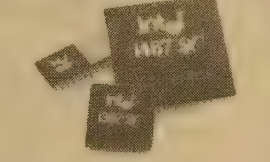
Macintosh



1MBX8	80ns	2Chip	$26.99
1MBX8	80ns	8Chip	$30.99
1MBX8	70ns	2Chip	$29.99
1MBX8	70ns	8Chip	$32.99
2MBX8	80ns	2Chip	$69.99
4MBX8	80ns	8Chip	$114.99
4MBX8	70ns	8Chip	$119.99
4MBX8	60ns	8Chip	$135.99
4MBX8	80ns	II-FX	$139.99
16MBX8	70ns	8Chip	$629.99

MATH CO-PROCESSORS

intel®



80287 ALL SPEEDS	$65
80387SX-ALL SPEEDS	$79
80387DX-16, 20,25,33	$79

IIT INTEGRATED INFORMATION TECHNOLOGY

2C87-8, 10, 12	$59
2C87-20	$67
3C87SX-16, 20, 25	$69
3C87SX-33	$79
3C87-20, 25, 33	$79
3C87-40	$89

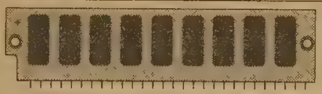
Cyrix™ ADVANCING THE STANDARDS

83S87SX-16, 20, 25	$69
83S87SX-33	$79
83D87-16, 20, 25, 33	$79
83D87-40	$89

WEITEK

4167-25	$359
4167-33	$629

MEMORY SIPPS



1X9/70	$38.99
1X9/60	$44.99

72-PIN SIMMS

2MB 604-70ns	$89
4MB 1X36-70ns	$159
8MB 2X36-70ns	$269
16MB 4X36 70ns	$629

MOTHERBOARDS

High Quality, High performance

386SX-25MHz	$109
386SX-33MHz	$119
386DX-40MHz w/CPU, 64K Cache	$189
w/CPU, 128K Cache	$199
w/CPU, 256K Cache	$209
486DX-33 VESA Local Bus, 256K Cache	$499
486DX-50 VESA Local Bus, 256K Cache	$699
486DX2/66 VESA Local Bus, 256K Cache	$749

CACHE MEMORY

32X8-25	$6.50
32X8-20	$8.50
32X8-15	$17.00
32X8-12	$39.00
64X4-25	$8.50
64X4-20	$9.00
64X4-15	$18.00
64X1-20	$5.75
64X1-15	$6.75
8X8-25	$3.75
8X8-20	$3.25
8X8-15	$4.75
16X4-20	$6.25
16X4-25	$4.75
16X4-15	$8.25
128X8-25	$41.50
128X8-20	$CALL
128X8-15	$CALL

DIPPS

256X1 100ns	$2.09
256X1 80ns	$2.39
256X4 70ns	$5.45
64X4 100ns	$3.39
64X4 80ns	$3.79
1X4 80ns	$17.99
1MBX1 100ns	$3.75
1MBX1 80ns	$3.99
1MBX1 70ns	$4.29
1MBX1 60ns	$4.65

INTEL CPUs

486DX-33MHz	$339
486DX-50MHz	$499
486DX/2-50MHz	$459
486DX/2-66MHz	$599

THE NEW NCA BUILDING: CORNER OF LAWRENCE EXPWY & KIFER RD

Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086

(408) 739-9010

NCA PERIPHERALS

CORPORATE Gov't. & Univ. Accts 408 522-8672

Dealers Accts 408 522-8673

FAX for PO'S 408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)

Gov't, University, & Approved Corporate P.O.s Welcome

CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS

All Items are Brand New with Full Factory Warranty.

Tech Support for MAC and IBM Companies.

Full Installation Center for all our Hard Drives.

We Ship World Wide.

Dealers Qty Pricing is Available.

Electronic Verification To Prevent Fraud

8

ACCESSORIES SUPER SOURCE

FAX-MODEMS

BLOW OUT

USRobotics®
The Intelligent Choice in Data Communications
FIVE YEAR WARRANTY

SPORTSTER

MADE IN THE USA

14,400 FAX/MODEM V.32/V.42

INTERNAL	EXTERNAL
$219	$239

MAC EXTERNAL 14.4	**$299**
9600 INTERNAL FAX/MODEM	$
9600 EXTERNAL FAX/MODEM	$

KEYBOARDS

KEYBOARDS

DESCRIPTION	PRICE
MITSUMI High Quality Keyboard	$29.99
MITSUMI BLACK	$49.99
MAX STANDARD 101 KEY	$19.99
ALPS SWITCH CLICK STYLE	$39.99

FOCUS

DESCRIPTION	PRICE
FOCUS 2000 W/COVER	$42.99
FOCUS 9000 with Calculator	$89.99

POINTING DEVICES

LOGITECH

HIGHEST QUALITY POINTING DEVICES

NAME	PRICE
FIRST-MOUSE	$36.95
MOUSE-MAN	$59.99
TRACK-II trackman II	$84.95

MEDIA

TAPES & CARTRIDGES

DESCRIPTION	SINGLE	5-PACK
120/250MB QD2120	$18.95	$90.99
150MB 1/4" TAPE 6150	$22.95	$107.50
250MB 1/4" TAPE 6250	$28.95	$137.50
525MB 1/4" TAPE 6525	$33.95	$155.00
2.0GB 4mm DAT TAPE 90M	$19.95	$85.00
Exabyte Cleaning Tape	$19.95	$85.00
4mm CLEANING TAPE	$19.95	$85.00
2.0-5.0GB EXABYTE	$17.95	$79.95
128 OPTICAL RICOH	$49.00	$239.00
128 OPTICAL LENS CLEANER	$29.00	$139.00
650MB RICOH CART. OPTICAL	$145.00	$699.99
1.0GB GLASS OPTICAL CART.	$199.00	$979.00
44MB SYQUEST CART.	$67.00	$320.00
88MB SYQUEST CART.	$99.00	$489.00

FLOPPY DRIVES

TEAC

FLOPPY DRIVES

DRIVE FORMAT	PRICE
1.2MB	$57
1.44MB with 5.25" Kit	$55
1.2/1.44MB Dual Floppy	$149
2.88MB SONY Floppy	$89.99

CABLES

EXTERNAL CABLES

DESCRIPTION	PRICE
CENTRONICS TO SCSI-II	$39.99
CENTRONICS TO MAC 25-PIN	$7.99
CENTRONICS 50 TO CENTRONICS 50, 6FT	$12.99
CENTRONICS 50 TO CENTRONICS 50, 3FT	$9.99
CENTRONICS TO DB-50	$39.99
DB-50 TO SCSI-II	$39.99
DB-50 TO DB-50	$39.99
SCSI-II TO SCSI-II	$39.99

INTERNAL CABLES

DESCRIPTION	PRICE
40 PIN IDE, 3 CONNECTORS	$3.99
50 PIN SCSI, 4 CONNECTORS	$9.99
50 PIN SCSI, 3 CONNECTORS	$5.99
FLOPPY & IDE CABLE SET	$5.99

MONITORS

MONITORS

14" SVGA
Non-Interlaced
1024X768 .28dpi
Standard Tech

LOWEST EVER! $288

DESCRIPTION	PRICE
PAPER-WHITE VGA 14"	$109
SVGA INTERLACED 14" .28DPI MGC	$269
SVGA NON-INTERLACED 14" .28DPI MGC	$309
SVGA BLACK 14" 1024X768 .28	$299
SVGA NON-INTERLACED 15" 1280X1024	$419
SVGA NON-INTERLACED 17" 1280X1024	$799

VIDEO CARDS

SVGA CARD WITH 512K	$44.99
SVGA CARD WITH 1024K	$59.95
DIAMOND STEALTH WITH 1MB RAM	$239.99
DIAMOND SPEEDSTAR 24X WITH 1 MB	$179.99
PRODESIGN IIS 1MB	$189

CASES

- ▶ HIGH QUALITY CASES
- ▶ UL APPROVED POWER SUPPLY
- ▶ GREAT STYLE SELECTION

BETA SERIES™

DESCRIPTION	PRICE
MINI-TOWER P-105, 230W	$69.99
MED-TOWER P-203, 230W	$99.99
FULL-TOWER P-306, 250W	$119.99

SYNERGY™

DESCRIPTION	PRICE
MINI-TOWER 16-705	$69.99
MED-TOWER 16-400	$99.99
FULL-TOWER 32-380	$119.99
FULL-TOWER W/DOOR 32-190	$129.99

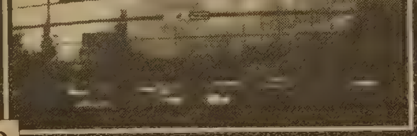
EVER™ SERIES

DESCRIPTION	PRICE
MINI-TOWER EC373	$84.99
MED-TOWER 200W, W/DOOR EC467	$119.99
FULL-TOWER EC662	$139.99

EVER™ BLACK SERIES

DESCRIPTION	PRICE
MED-TOWER BLACK 200W	$109.99
FULL-TOWER BLACK	$149.99

THE NEW NCA BUILDING Corner of LAWRENCE EXPWY & KIFER RD



Awesome Value, Awesome Service

Mon-Fri 9AM-7PM; Sat 10AM-6PM; Sun 12PM-6PM.

1202 Kifer Rd. Sunnyvale, CA 94086
(408) 739-9010

NCA
PERIPHERALS

CORPORATE, Gov't. & Univ. Accts	Dealers Accts	FAX for PO'S
408 522-8672	408 522-8673	408 739-2420

PURCHASE ORDERS WELCOME (Supplier of Fortune 1000 Companies)
Gov't, University, & Approved Corporate P.O.s Welcome
CORPORATE DEPT. (408) 522-8672

NO SURCHARGE FOR listed CREDIT CARDS
All Items are Brand New with Full Factory Warranty.
Tech Support for MAC and IBM Compatibles
Full Installation Center for all our Hard Drives.
We Ship World Wide.
Dealers Qty Pricing is Available.

AMERICAN EXPRESS DISCOVER MasterCard VISA
Electronic Verification To Prevent Fraud

Price and Availability are subject to change. All logos are property of their respective companies.

continued from page 125

into another letter based on some rule. It turns out that doesn't obscure enough of the information. By looking at the frequencies you can figure things out. That is a simple example of how this [cryptanalysis] works. The Friedman books are all about that sort of stuff—about how to break those sorts of codes."

The national security requirement for keeping fifty-year-old crypto texts classified appears questionable on its face, but the issue is somewhat more complex. Says Gilmore: "The NSA claims that there are still countries somewhere in the world that use those systems. By publishing this information, we would reveal to them that their systems were being read by the United States."

Some, of course, question this argument. After all, they say, if someone had built a national crypto system so weak that just by reading these books you could break its codes, chances are that this same person does not follow, or even know about, NSA publications. Also, since these books are almost a half-century old, the NSA has most likely developed a significantly more advanced (and still-classified) system.

THE STRANGE TALE OF FOIA AND THE CRYPTO TEXTS

FOIA specifies that when you file a request, you'll get a response in ten working days, and that the response will contain everything that can be released. After receiving Gilmore's request, the NSA sent a postcard notifying him of his number in a queue and that they would eventually get to him. Approximately two months later, Gilmore had still not received a response from the NSA. There are no penalties attached to the FOIA, and many US Government agencies are lax in meeting the deadlines.

The citizen's next recourse is an Administrative Appeal. The process is relatively simple—you send a letter, referencing your request and asking for an appeal. Non-response by the agency (providing you with neither the information requested nor an explanation of why you should not have this information) within the time limits is considered a denial by the Act. You then have a cause for action in court against the government. On September 4, 1992, Gilmore filed a complaint in federal court.

Meanwhile, however, in the period between the initial FOIA request to the NSA and the filing of the complaint, Gilmore obtained copies of the Friedman books in libraries accessible to the public—a draft copy of *Part IV* was in the Friedman archives at the Virginia Military Institute, and a microfilm copy of *Part III* was at Boston University. (*Part III* was discovered through searching an online card catalogue.) The copy of *Part III*, stamped declassified in 1975, was an off-site archival copy from the New York City Library.

In early October, the NSA responded to the original FOIA request, saying, in essence: "We can't give you any of these documents; we deny your requests in full." They pointed out that two of the documents are classified confidential, and the third is classified secret—Gilmore's first official notification that any of these books were classified.

Gilmore explains: "One of the exemptions to the FOIA is that if some law says you can't give it out, then you can't give it out. One of those laws is a 1950s espionage law that says you can't give classified material to a person not authorized to receive it."

Learning that the legally obtained documents he now had were classified changed the situation for Gilmore: "We went, 'Well, we've just got official notice that these documents are classified. We have copies. If I give a copy to my friend, I'm breaking this espionage law, but I got this document from the library and it's public domain.' The more we looked at it, the more we realized that this went to the heart of the First Amendment issue, which is the right to publish."

The real or implied threat of jail for publishing documents you legally and freely obtained creates a condition known as "prior restraint"—a situation where the government is stopping you from exercising your constitutional right to publish or distribute information. Under prior restraint, a publisher would need to make sure a document had not been classified (or reclassified) since it obtained a copy—in other words, getting the government's approval to publish. The Supreme Court has uniformly ruled such actions—whether enforced as laws, regulations, or by some other means—are unconstitutional.

"When we got this response from them, it put us into an intense period for a couple of weeks where we were figuring out what to do," says Gilmore. On November 12, 1992, he filed to amend the original complaint to address the constitutional issue of the "combination of this espionage law and the executive order that lets [the government] reclassify" previously open documents. Concurrently, he sought to file his copies of the documents under seal with Judge Thelton Henderson, the federal judge hearing the case.

Placing the documents under seal with the court and amending the complaint caught the attention of a *San Francisco Examiner* reporter who had been quietly tracking the case. He decided this now warranted a story, which went out over the wire service, appearing in major papers the following day. The following Saturday, the *New York Times* also ran a story.

Shortly after the articles appeared, Gilmore says, "The NSA realized the publicity they were getting and said, 'We better cut this off.' They decided to declassify the two documents we had. We actually found out that they had declassified them because they called [*New York Times* writer] John Markoff and said, 'We are declassifying them,' and he called us."

On the day before Thanksgiving, the NSA made its official announcement that Friedman's two books would be declassified. In January of this year, they released an edited version of the work by Callimhos. This edited version is being examined by Gilmore and various experts to determine whether this satisfies the request.

UNRESOLVED ISSUES

John Gilmore and the NSA have entered into negotiations to settle what remains of the complaint. There are three outstanding issues: the unedited version of the Callimhos document; compliance with time limits; and the constitutional impact of reclassifying documents.

The NSA's position is that there is nothing it can do about the constitutional issue; it would take action in Congress, the National Security Council, or the President to change the executive order.

On time limits, there is some hope of reaching an agreement. Gilmore has offered to not pursue the rest of the Callimhos document if the NSA commits to responding to FOIA requests within the time limits stated in the Act. "We sent them a draft settlement that lays out sort of a consent decree for them on the issue of time limits, which the court would monitor. We'll see if that gets anywhere.

"Part of the reason fixing time limits with the NSA is key is because they have a lot of information. I see the main effort of the next couple years to pry them out into the public.

"If there is a real reason why they need to hold all of our privacy hostage, then they had better explain it. And we as a society can weigh that in the balance and say, 'We'd rather have the privacy and risk the higher chance of nuclear war, or we'd rather have less privacy and a lower chance of nuclear war'—if nuclear war's the thing. But if it is just an ingrained bureaucratic inertia that's keeping this privacy out of our hands, then we want to weigh that in the balance and say, 'Screw this inertia, we want privacy.'" ■

1 YEAR WARRANTY ON ALL MEMORY

CMC

SIMMS

IBM	
1x9-60 3 Chip	$34
1x9-70 3 Chip	31
1x9-80 3 Chip	30
1x9-70/80 9 Chip	34/33
1x9-100 9 Chip	29
4x9-60 9 Chip	CALL
4x9-70 9 Chip	CALL
4x9-80 9 Chip	CALL
16x9-70 NEW!	625

Call on SIMMS and SIPPS Not Listed

72-Pin SIMMS .... CALL

256K VRAM 22
512K VRAM 58

32/64 MB Kits for
Mac IIci, FX &
Quadra 700 &
900/950....CALL

MAC	
1x8-80 2 Chip	$29
1x8-70 2 Chip	30
1x8-80/70 8 Chip	31/32
2x8-80/70	62/65
4x8-80/70	CALL
16x8-80 NEW!	495
MacIIfx 4/16MB	135/480

DRAMS

DRAMS	
256x1-80	$$1^{75}$
256x1-120	1^{20}
256x1-10	1^{45}
256x4-70/80	4^{25}
64x4-80/100	1^{75}
1x4-80/70	17
1MBx1-70	4^{25}
1MBx1-80	3^{95}
ZIPP/SOJ	CALL

STATIC RAM (Cache RAM)...CALL
Call For Lowest Pricing Items Not Listed!

MATH CO's

INTEL/IIT	
287XL Intel	$55
287-10 Intel	45
8087-1/2 Intel	79/49
387SX-16/20	64
387SX-25 CYRIX	69
387SX-33 ULSI	79
387DX-20 Intel	54
387DX-25 Intel	67
387DX-33 Intel	77
387DX-40 Cyrix/IIT	87
Weitek 4167-25	329

Call For Pricing On IIT, CYRIX, ULSI & Weitek

LASER PRINTER MEMORY

HP-ALL MODELS	
Installation Instructions Included	
2 MB Board	$99
4 MB Board	159
HPIV 4/8MB	149/284
IIIsi 4/8 MB	138/264
DesignJet Plotters 4 MB	144
LaserJet FAX 1 MB	82
DeskJet 500 256K	52
PostScript Cartridge for HP	219

IBM LASER	
4019/4019E 1/2 MB Brd	$89/119
4019/4019E 3.5 MB Brd	169
4029 4 MB	139

PANASONIC	
KXP4410/KXP4430 1/2 MB	$89/115
KXP4410/KXP4430 3/4 MB	149/184
KXP4420/4450I 1/2 MB Board	79/108
KXP4420/4450I 3/4 MB Board	139/169
KXP4450 1MB	111

EPSON LASER	
6000 2/4 MB	$114/179
7000 2/3 MB	125/159
Action Laser II 2/4 MB	108/169

OKI 400	
1/2 MB Board	$84/106
800/820 Only 2/4 MB Board	79/99 109/165

OTHER LASER PRINTER MEMORY	
Apple Laserwriter II/IINT/IINTX 4 MB	$139
Brother HL-4 2/3/4 MB	119/155/185
Fujitsu RX100/7200 1/2 MB	185/245
Kyocera F800, F800A, F800T 2/4 MB	137/199
NEC Silentwriter 90/290 1/2 MB	99/134
NEC Silentwriter 95 2 MB	109
QMS PS410 2/3/4 MB	119/165/189
TI Microlaser 1 MB	55
Facit P6060, AT&T 593, TEC 1305B PB9600, Toshiba Pagelaser 6, NCR 6435, Mannesman Tally 905/906 2/4 MB	109/179

NOTEBOOK/LAPTOP MEMORY		
Altima LSX	2/4 MB	$165/249
AST Exec (70ns)	4 MB	134
Chaplet Notebook	2/4 MB	155/249
Compaq Contura	2/4/8MB	105/155/295
Epson NBS3	1/4 MB	98/225
Everex Tempo LX	2 MB	88
HP 95LX	1/2 MB	159/279
IBM L40SX, N33/SX, 57SX	2/4/8MB	99/155/299
Mac PB 140, 170	2/4/6MB	89/175/229
Mac PB 100	2/4/6MB	89/179/239
Magnavox Metalis 386SX	4 MB	189
NEC Ultralite 286F	1/4 MB	99/199
Packard Bell 386/SX	1/4 MB	99/225
Panasonic CF 170/270/370	1/2 MB	69/99
Sampo Notebook SX/16, SX/25	2/4 MB	145/225
Sharp PC 8501	2 MB	105
Sharp 6781/6881	2 MB	129
Toshiba 4400/T6400	4/8 MB	219/368
T1600/3100E/T5100	2 MB	87
T3100SX/T3200SX	2/4 MB	105/157
T3300SL	2/4/6MB	135/199/279
TI Travelmate 2000	1 MB	77
TI Travelmate 3000	2 MB	69
TI Travelmate 4000	4 MB	219

IBM PS/2 & PS/1 MEMORY

Model		P/N	
PS/1 286/386SX	2/4 MB		$95/149
PS/2 30-286	2 MB	30F5360	89
50Z, 55SX, 65SX, 70	2 MB	6450604	79
	4 MB	34F2933	145
40SX, 35SX, 35LS	8 MB	6450129	294
70-A21, A61, 121	2 MB	6450608	84
80-111, 121, 311	2 MB	6450379	109
80-A21, A31, A61	4 MB	6451060	210
95, 90, P75, PS/1 PRO	2 MB	6450902	110
	4 MB	6450128	149
	8 MB	6450130	305
16 Bit Exp. Bd for Model 50, 50Z, 60, 65SX	0K	6450609	144
32 Bit Exp. Board for All 70 & 80 Models	0K	64F30XX	164

COMPAQ MEMORY

Model		P/N	
LTE 286	2 MB	117081-002	$115
	4 MB	117081-003	175
SLT286	4 MB	110237-001	299
LTE 386S/20	2 MB	121125-001	119
	4 MB	121125-002	189
Lite 20/25, Contura	2 MB	129769-001	105
	4 MB	129769-002	155
	8 MB	129769-003	295
Portable 386	1 MB	107651-001	109
	4 MB	107653-001	299
Portable III	2 MB	107332-001	79
	EDB	167811-001	220
SLT 386	2 MB	118304-001	119
	4 MB	118305-001	185
Deskpro 386S (E. Bd.)	4 MB	113634-001	239
	4 MB	112534-001	169
Deskpro 386/20e, 25e (E. Bd.)	4 MB	113645-001	239
Deskpro 386/20, 20e, 25e, 25	4 MB	113132-001	169
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486/25M, 486S/16M, Systempro, LT486SX/25S, 386/25S	2 MB	118689-001	95
	4 MB	118690-001	149
	8 MB	128877-001	294
L Series & Others			CALL

SUN		
SPARC SLC	4 MB	$145
3/60, 80; 4/40, 60, 65	4 MB	139
	16 MB	545
SUN IPX, ELC	4/16 MB	175/525
SUN CLASSIC	16 MB	585
SUN SPARC II	16 MB	549
Other Models		CALL

AST		
Premium 386/25, SX 33, 486/25	1 MB	$40
Premium II 386, 486	1/4 MB	37/145
Exec Notebook 70ns	4 MB	134
Other Models		CALL

California Memory & Components
356 S. Abbott Ave., Milpitas, CA 95035
Discount for Resellers, VAR's & Consultants
We Ship Worldwide

TEL: (408) 956-8291
FAX: (408) 956-8584

All Parts Are New & Guaranteed
$ Trade-in Your Existing Memory $

Mon-Fri 9-6pm, Sat 11-3
Price & Availability Subject To Change

880
ABBOTT
237
680

No Surcharge
VISA
MasterCard
COD
P.O.'s accepted

Continued from page 128

> **Vortex's Golden Gate 486SLC (GG) is the first commercially distributed PC emulator built around a 486 processor.**

cally, this is suppose to allow you to access things on the PC side, like floppy or har disks from the Amiga side. Unfortunately, this is not fully functioning yet; how ever, Vortex is working on it.

INSTALLATION

My evaluation board came with 4MB of RAM plus the optional floppy dis controller. Installing the GG in my A3000 was a snap, pretty much plug-and-go. placed the board in one of the bridgeboard slots and ran the installation software This basically copies the main GG program files to a designated directory and few special files to the DEVS: and LIBS: drawers. All the software fits on a sing floppy and is not compressed. The only out of the ordinary thing I had to do w create a file in the DEVS: drawers that identified my machine as an Amiga 3000

Before running the emulator, you must set a few preference items. First off, yo need to set the language to English. My board came with German as the defau language. Next, you need to designate which floppy disk drives will be used as P drives A and B. As stated previously, this can be the Amiga's or GG's external internal floppy drives.

If you will be using a hard disk, you will next identify which hard disks (you ca have multiple HDs) the board should use. Again, these can be Amiga HDs or one attached on the PC side. For my setup, I designated an entire 42MB Syques partition as PC drive C. This external drive is connected to my A3000's SCSI port

One word of caution here. If you will be using a file to emulate a partition, yo need to exit (and save the settings) after you set the language to English, and rerun the setup program. If you don't, you will not be able to type in the full path nam for the file, since the keyboard will be mapped incorrectly and German character will come out instead of characters like the colon (:).

DISPLAY

The last two settings on this screen are for the boot disk and display mode. Th boot setting gives you the option of always booting from the hard disk bypassin the floppy. For displays, the GG emulates a variety of PC screens on the Amiga Limited color is possible, but for the most part color slows the display emulatio down to unacceptable levels. The Olivetti/AT&T monochrome display emulatio provided excellent display updates, even when I ran Microsoft Windows.

PC display emulation is a real bottleneck, so, alternatively, you can install separate PC graphics card (e.g., EGA, VGA, etc.) in your Amiga for true blue P graphics. Normally, this would also require a separate PC monitor. Howeve Vortex sells Monitor Master, a display switching device that allows the PC an Amiga video outputs to share a single multiscan monitor. Using a simple key stroke, you can toggle between the two displays. Once hooked up, your monito connections may look like a Christmas tree, but Monitor Master does work advertised.

It is important to note that using a separate PC graphics card may cause display size problem. The Commodore 1960 I use with my A3000 has two specia switches that eliminate the black border and increase the display to fill the screen Unfortunately, when the VGA output is sent to the 1960, via Monitor Master, th PC display is stretched to fill the same area, and about one-half inch all the wa around the display is hidden. I can switch the 1960 back to the border mode for a acceptable PC display; however, it looks silly when I toggle back to the Amiga side I was told by Vortex that this situation does not occur with all monitors, and tha many VGA-only monitors will not exhibit this annoying behavior.

If you don't need a fast color display, I would recommend sticking with th display emulations. This will leave the PC/AT slot open for something more fu like a CD-ROM or Sound card.

NITRONIC CORPORATION

5 YEAR LABOR 1 YEAR PARTS WARRANTY

PC REPAIRS & MAINTENANCE WELCOME
REASONABLE PRICES

486DX2 50/33 w/256K

- US MADE AIR 3 Slot VESA Local Bus 256 Cache Motherboard
- Intel 486DX-33/50 CPU
- 8MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- VESA Local Bus 32 Bit IDE Controller with 2S, 1P, 1G
- VESA Local Bus Cirrus-Logic 1MB Accelerator
- 1024x768 .28dp Monitor
- 213MB Western Digital Hard Drive
- Zeos-like NTC Keyboard
- Medium Tower Case w/250W power supply

$1915/1775

486DX 33/50 w/64K

- Intel 486DX-33/50 CPU
- AMI Bios
- 4MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- IDE/IO 2FD/2HD with 2S, 1P, 1G
- 1024x768 .28dp Monitor
- Cirrus-Logic w/1MB Windows Accelerator
- 130MB Maxtor Hard Drive
- Zeos-like NTC Keyboard
- Medium Tower Case w/250W power supply

$1298/1428

386DX 33/40 w/64K

- AMD 386DX 33/40 CPU
- AMI Bios & Math Co. Socket
- 4MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- IDE 2FD/2HD with 2S, 1P, 1G
- 1024x768 .28dp Monitor
- Trident SVGA w/512K
- 80MB Conner Hard Drive
- Zeos-like NTC Keyboard
- Mini Tower Case w/200W power supply

$946/948

386SX 25/33

- AMD 386SX 25/33 CPU
- AMI Bios
- 2MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- IDE/IO 2FD/2HD with 2S, 1P, 1G
- 1024x768 .28dp Monitor
- Trident SVGA w/512K
- 80MB Conner Hard Drive
- Zeos-like NTC Keyboard
- Mini Tower Case w/200W power supply

$842/848

VGA CARDS

VGA 800x600, 256K	$25
Trident 512K /1MB	35/53
Tseng ET4000	78
Oak 1MB	48
Cirrus-Logic Windows Accelerator	76
Diamond Speedstar 24	148
Diamond Speedstar 24X	198
Orchid Fahrenheit 1280	198
Genoa Win VLB 1MB	170
VLB Cirrus-Logic Windows Accelerator	135

INTERFACE CARDS

MGP	$13
DTC-2270 VLB 270/2FD/2HD	CALL

SOUND CARD & CD ROM

Sound Blaster Pro	$169
Sound Galaxy Pro	165
Sound Galaxy NX	120
Sony CD ROM Kit (w/ Stereo sound card & 5 CDs)	469
Toshiba 3401B & SCSI Card	510
Sony CD ROM	260

MISC

4MBx9-70 Simm	$128
72Pin Simm Module 4MB/8MB/16MB	150/280/540

MOTHERBOARD & CPU

386SX 25/33	$99
386DX 33/40 w/64K	165/169
486SX 25 (CYRIX)	170
486DX 33 w/64K	408
486DX 50 w/256K	588
486ISA 33 VESA LB w/128K 2VLB Slot	155
486ISA 33/50 w/256K AIR VESA LB 3 VLB Slot	236/249
486EISA 33/50 w/256K AIR VESA LB 3 VLB Slots up to 256MB using 72 Pin Simm	466/500
486VESA 33/50 256K Orchid VLB SuperBoard 2 VLB Slots	290/330

MICE

Logitech Mouse Man	$59
Logitech Mouse Man (OEM)	45
Microsoft Mouse	49
Microsoft Compatible	12

KEYBOARDS

101 Enhanced	$20
Maxiswitch	30
Keytronic	35
Zeos-Like	32

TAPE DRIVES

120MB Colorado	$165
250MB Colorado	245
250MB Archive	195

HARD & FLOPPY DRIVES

40MB Conner /IBM	$138
80MB Conner	180
120MB Conner	222
130MB Maxtor	225
170MB Conner	259
200MB Maxtor	309
340MB Maxtor	550
520MB Fujitsu	860
520MB Fujitsu SCSI	865
Teac 1.2 & 1.44 MB Floppy	53/48

MODEMS

2400 Baud int/ext	$33/59
Pocket Fax modem	63
Fax/Modem 9600/2400	58
14,000 Modem (int/ext)	205/215
Modem/Fax 9600 for Windows	69

MONITORS

Mono 12"/14"	$73/92
SVGA 1024x768 .39dp	208
SVGA 1024x768 .28dp	248
SVGA 1024x768 .28dp Non-Int	278
Sony 1304S /1604	549/957
Viewsonic 4E /5E /5+	282/382/482
Viewsonic 6E/6FS	322/563
Viewsonic 7/8	462/1512

FOR PRODUCTS NOT LISTED CALL

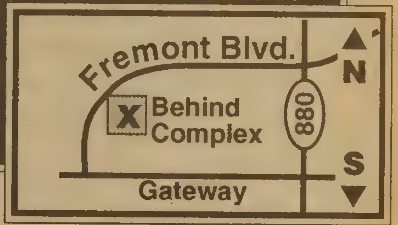
(510) 657-1798
Fax (510) 657-4086
46560 Fremont Blvd. #117
Fremont, CA 94538
Hours: M-F 9-5:30 Sat 10-3
5 Year Labor, 1 Year Parts Warranty

COMPANY PO'S WELCOME
UPS SHIPPING DAILY
PRICES SUBJECT TO CHANGE W/O NOTICE
NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS

VISA

MasterCard

NITRONIC CORPORATION



AMIGA INTEGRATION

The things that this board does are incredible!

First off, the Amiga mouse will emulate a Microsoft mouse using COM1. Under Windows, you don't need to do anything; the mouse will operate immediately. If you aren't going to run Windows, you'll probably have to load a mouse driver in your Config.sys file.

COM2 can be used to communicate with the Amiga serial device. I was able to run communication programs without a hitch. The Amiga parallel port, similarly, acts as the PC parallel port. I printed several letters on my dot matrix printer using the Windows TrueType fonts. These came out as least as good as any Compugraphic font output I'd done using Professional Page.

The emulation multitasks beautifully. You can flip back and forth between the PC and Amiga screens with a simple keystroke. Switching between Windows and an Amiga application is infinitely smoother than switching between Windows applications.

The keyboard mapping is as close to a PC's as you could get. The control, shift, and both Alt keys operate as you'd expect. Even the numeric keypad operates just like the real thing, including combination shift keystrokes. Fortunately, for the most part, the Amiga keyboard is arranged very close to a normal 101-key PC keyboard.

COMPATIBILITY

The GG board ran everything I threw at it, including Windows 3.1, with a few exceptions.

There is a problem using the Amiga floppy disks as PC drives when Microsoft Windows is loaded. With Windows running under DOS 5.0, I was unable to successfully read from or write to floppy disks in my Amiga drives. However, disks placed in the 1.44MB drive cabled to the GG's floppy disk controller worked fine. With Windows not loaded, the Amiga drives worked perfectly. I advised Vortex of the problem; hopefully they will find a solution.

Also, I was unable to get America Online, a communication package, to install successfully. Installation also failed using CrossPC, a software-only PC emulator; however, I was able to install the program on an XT clone. Apparently, the program unnecessarily checks for something that isn't emulated, probably a hardware setting.

SUMMARY

The card is priced about the same as a 486SX PC clone with VGA monitor and large hard drive. However, if you are short on desktop real estate, the GG provides an attractive alternative. You'll also get to share not only modems, printers, and RAM, but also hard disks and presumably CD-ROM. You won't need messy switch boxes and cables either. Once the problems with the Server software get worked out, you'll also be able to access the PC devices from the Amiga side. This may also be a way to sneek an Amiga into busineses as a true PC compatible! The GG will reportedly even run Windows NT.

The GG board allows you to add speedy PC compatibility to the solid multitasking AmigaDOS operating system. It's a great alternative for the current Amiga users being seduced by the onslaught of PC software and hardware. For me, the Amiga delivers everything I need. However, for those that require or lust for PC compatiblity, especially to run Windows, Vortex's GG board is the only one to get. Of course you could always wait for someone to make an Amiga emulator for the PC, but don't hold your breath. ■

---

continued from page 154

it. One might extrapolate from that experience that Johnstone also promotes discussion on his BBS, rather than waiting for discussion to somehow magically appear. The sysop who is truly interested in his users, the subject matter of his BBS, and in promoting discussion is going to have an easier time running a discussion-oriented BBS than one who is not.

Roughly 10% of BBS users are women, although the number jumps to around 15% of online service users (discussion-oriented services). There are a number of factors that keep women from ever being online in the first place, so the responsibility for their absence does not rest solely on the BBS operator.

Many sysops would welcome more women online and are annoyed to hear of blatantly sexist and insensitive BBS operators and instances where women are harassed. To encourage women to participate, some subscription boards (not just "adult chat" boards) extend subscriber privileges to women at no charge. There is something about BBSing—perhaps a stereotype of "techiness"—that just does not appeal to a lot of women; as BBS software becomes easier to use and more special-interest boards start up, it seems unfortunate that more women haven't gotten interested in the hobby.

The new sysop might want to give some thought to how the presentation of material on the BBS appears to others. A GIF file in a general download area labeled "a cute babe in a bikini" sends a message to both women and men about the sysop's sensibilities. A sysop of a religion-oriented board labels one of the echo message areas on his board with the following caveat: "Attitudes of condemnation and intolerance are all too often found here so be forewarned—some of you will find this echo extremely offensive and lacking in ethical tone." This sysop makes it clear that although he carries the echo on his BBS, it does not mean he condones what's written in the echo, and he is sensitive to the potential reactions of his users.

Don't underestimate the effect phone company toll charges will have on the use your BBS will get. Facilitate quick access with mail readers and encourage callers to use them. Once callers start showing an interest in your BBS, consider a second phone line, answered with a high-speed modem if feasible. Constant busy signals discourage new callers.

Match access to the board with the board's purpose—a board dominated by downloaders will require more resources in phone lines and modems than a discussion board where almost everyone uses a mail reader to download and upload responses.

Start advertising your BBS once things are running smoothly and there's material online to read. List your BBS in local computer publications, in the BBS ADS area of other boards local to you, in the BBS ADS area of any network your BBS carries, and if you or a friend have access to Usenet, in the newsgroup alt.bbs.ads. Make a nice presentation, a little less than a screenful, to advertise what's unique about your board, and post it regularly—once or twice a month—without becoming a pest.

Of course, there's nothing to prevent the sysop hobbyist from putting together a BBS without thinking about its content, then advertising it with "Call this BBS now!" on every BBS in the same area code; but if some thought about the process can improve the result, why not try it? A sysop with a unique idea, who is attentive to the many little details, will grow into a BBS that gets noticed and used. ■

Senior Engineer Scott Said:
Legend 486 Computer System has the best quality and Value "

"Local Bus"
Super Motherboard
② Slots &
① Hiding Slot
HERE !!!

Legend

CONNER
SUPER
200MB HDD
256K CACHE
+
12MS
Available

486/DX2/66 LOCAL BUS SYSTEM

- Motherboard &CPU
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G
- 1.2MB & 1.44 TEAC Floppy Drive
- 170MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower w/230W Power Supply & LED
- 101 Enhanced Keyboard

$ 1473

SYSTEM	BASIC SYSTE			BASIC SYS 40MB HDD VGA CARD MONITOR	BASIC SYS +80MB HDD +SVGA CARD & MONITOR	BASIC SYS +120MB HDD +SVGA CARD & MONITOR	BASIC SYS +170MB HDD +SVGA CARD & MONITOR
486DX2-66 EISA	939			1327	1367	1417	1447
486-50/64C EISA	888			1266	1306	1356	1386
486-33/64C EISA	709			1087	1127	1177	1207
486DX2-66 ISA	799			1177	1217	1267	1297
486-50/64C ISA	714			192	1132	1182	1212
486-50C ISA	669			1047	1087	1137	1167
486-33C ISA	456			834	874	924	954
486SX-25C ISA	345			723	763	813	843
386-40/64C	315			693	733	783	813
386DX-33	310			688	728	778	808
386SX-33	251	479	599	629	669	719	749
386SX-25	242	470	590	620	660	710	740

BASIC SYSTEM CONFIGURATION:

Motherboard + CPU, 1 MB Memory Installed, 1:1 2 HD/2FD Controller, 1.2 MB or 1.44MB Floppy Drive, Internal Clock/Clendar, Enhanced Case with Power Supply, & 101 Enhanced Key Board.

LEGEND SUPER SALE !!!

486DX2-66/486DX-50

- High Quality Legend Motherboard
- 486CPU/64K Cache
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB TEAC Floppy Drive
- 1.44MB TEAC Floppy Drive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower w/LED Display & Power Supply
- 101 Enhanced Keyboard

$ 1438/1348

486-33/64K

- High Quality Legend Motherboard
- 486CPU/64K Cache
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB TEAC Floppy Drive
- 1.44MB TEAC FloppyDrive
- 130MB Hard Drive
- SVGA Video Card
- 14' SVGA Monitor 1024x768
- Mini Tower w/LED Display
- 230W Power Supply
- 101 Enhanced Keyboard

$ 1049

386-40/64K

- 386DX-40 CPU/64K cache & Legend Motherboard
- 4MB RAM
- IDE I/O (2HD/2FD 2S/P/G)
- 1.2MB TEAC Floppy Drive
- 1.44MB TEAC FloppyDrive
- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower w/LED Display
- 230W Power Supply
- 101 Enhanced Keyboard
- Math. Co-processor Socket

$ 944

Urgently Wanted !!!
IBM Compatible PC Contest
Spring, 93

○ All PC system houses: welcome you provide your top quality system to join the contest before 25 Mar. 1993

○ All systems will be evaluated by state of the art equipments.

○ Please call sponsor Legend Computer Inc. for more details

Legend Computer Inc.
384 South Abbott Ave.
Milpitas, CA. 95035
TEL: (408)262-6861
FAX: (408)262-6315

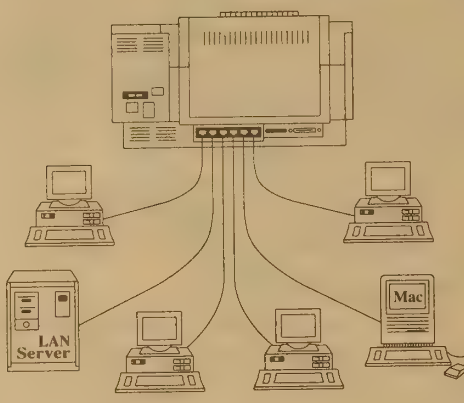
Business Hours:
Mon-Fri. 9AM-6PM
SAT 9AM-6PM

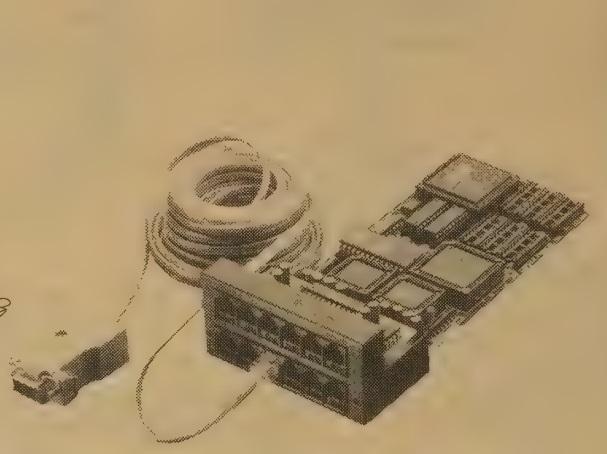
I-880
ABBOTT AVE
ABEL AVE.
237
N
E
CALAVERAS BLVD.
384 S. ABBOTT AVE.

* Prices, availability and terms are subject to change without notice
* Not responsible for typos

Hassle-Free Printer Sharing

for your HP or compatible printer





Also for Your HP LaserJet 4 Printer

Here's how you and your co-workers can have your own HP LaserJet printers...without breaking your tight budget.

It's called the *ServerJet.*

Simply plug the *ServerJet* into the 'Optional I/O' slot of your HP LaserJet. Stretch phone cable, up to hundreds of feet, to each computer. Then, 12 people can simultaneously *whoooossh* documents to the LaserJet at speeds as fast as 115,200 baud.

No more wandering down the hall with diskette in hand.

Or borrowing someone else's LaserJet.

Or wasting time waiting to print.

The *ServerJet* is available in a variety of models with up to 4MB of buffer memory. And because your office may have printers other than HP LaserJets, ASP Computer Products offers a complete line of printer-sharing solutions.

To order your *ServerJet* or for a dealer near you call:

PC MAGAZINE

"The ServerJet is the smoothest and most practical way I know to share a LaserJet."

Frank J. Derfler, Editor
PC Magazine

800-445-6190
Dept. 33050
Call for your FREE Catalog

ASP

ASP COMPUTER PRODUCTS, INC.

160 San Gabriel Drive
Sunnyvale, California 94086
Tel: 408-746-2965 • Fax: 408-746-2803

ServerJet is a trademark of ASP Computer Products, Inc.
HP LaserJet is a registered trademark of Hewlett-Packard Co.

Some of the finger-straddles on the Kinesis Ergonomic Keyboard seem really bizarre—of course they also seem bizarre on the ordinary keyboard.

Continued from page 156

Included with the package sent to reviewers is a study commissioned by Kinesis. They watched one injured and eight healthy typists as they learned the keyboard. Before the test began, all the typists agreed that the keyboard would be difficult to use. After eight hours of use in three separate sessions, all the participants agreed that the keyboard was in fact easy to use. Over half of them had achieved the speed that they had on an ordinary keyboard, and the average was 95% of the baseline. The injured participant was performing better in both speed (105%) and accuracy (106%). Not bad for the equivalent of one day's training.

There are also testimonials from users who found that using the keyboard reduced their injuries. These are people who were diagnosed with tendinitis from heavy keyboard use and were receiving drug treatment or physical therapy. One must take company-sponsored studies and testimonials with a grain of salt, but I mention them because I had a similar experience. The keyboard was far easier to use than it looked. The design really did seem to reduce the stress of hours on the keyboard.

The Kinesis keyboard is reprogrammable in a number of different ways. You can remap the keys—useful if you come from a country which has a different key arrangement than that used in the United States. You can eliminate the key sounds, and change the repeat rate. You can program keyboard macros. Finally, you can get an optional foot-pedal which can be programmed to replace your most commonly struck key. Because the keyboard has onboard memory, these features cost you no RAM.

The problem is the cost. If the keyboard is medically prescribed, its cost vanishes into somebody's insurance bill. But if you have to pay for it yourself, $690 inflicts a pain of its own. Large corporations might find it a good investment. One worker who goes home with a Workman's Compensation claim costs a lot more than $700. ■

We Beat Hi-Tech Prices!!

UPGRADE YOUR 386 SYSTEM TO 486 PERFORMANCE—IF YOUR MOTHERBOARD IS COMPATIBLE W/THE CYRIX 486 CPU

"Get a Cyrix 486 DLC CPU Now!" 486 PERFORMANCE

UNBEATABLE SPECIALS!

CYRIX 486 DLC CPU	$110
CYRIX 486 DLC CPU + Motherboard & Math Chip	$269
Intel 387DX-33 (w/packing box)	$59
Intel 387SX (w/packing box)	$49
Maxtor 130MB Hard Drive	$214
Maxtor 213MB Hard Drive	$314
Quantum 240MB Hard Drive	$344
14400/14400 FAX/Modem (Made in USA)	$174

MONTHLY SPECIALS!!!

• 2" Hard Disk Drive 80MB/120MB	Best
• Printers	from $45
• Math 387	$45
• SIMM 60/70/80ns	From $28
• Big 340 SCSI Drive	Call
• SVGA Monitor (1024x768)	$209
• Adaptec 1522 SCSI	$93
• 250MB Tape Backup Dr	$180
• Mitsumi Keyboard	$26
• Mouse	$9
• 96/24 Fax Modem	$46
• SCSI / ESDI 340MB Dr	Best

Model	MB+CPU	Basic System
486DX-50 /64K	$590	$780
486DX-33/64K	$450	$620
486DLC-33/64K	$269	$440
486SX-25/64K	$220	$395
386DX-40	$170	$364
386DX-33/64K	$165	$358
386SX-33	$92	$306
286-12/20	$47	$237

Basic Systems Include: Motherboard, CPU, 1MB RAM (512KB for 286 system), HD/FD Controller, 1.44MB Floppy Drive, Math Coprocessor Socket, Case, Power Supply & 101-Key Keyboard.

486 VL-BUS BASIC SYSTEM:
ADD $35 FROM 486DX

40MB HD	$129
85MB HD	$169
170MB HD	$245
340MB HD	$445
500MB HD Conner	$795
SVGA Monitor w/Card	$244
SMVGA Monitor w/Card	$135
Non Interlaced Monitor	$285
17" Viewsonic OEM	$885

* FREE Math-Coprocessor w/486DLC/386/286 Basic System Purchase

Palo Alto Micro Corp.
3483 El Camino Real, 2nd Floor, Palo Alto, CA 94306
415/493-8209 • Fax 415/493-4572
1-800-472-8209

7 Years in Business with Quality Parts & Service

Prices Subject to Change w/o Notice

100% VESA Compatible

True Color VESA Local Bus

ONE BOARD FITS ALL*!

***Fits 486SX, 486DX2, 486DX and P24T**

ATLAS
ROGET'S II
MICROSOFT® WINDOWS COMPATIBLE

intel inside®

2% Discount with Cash

GUI STATION

- 8 MB 70 ns RAM up to 32MB
- 128 KB Cache
- 212 MB IDE Hard Drive
- 1.44 & 1.2 MB FLoppy Drive
- 15" Flat NI SVGA with .28 DP
- Genoa 32 bit True Color VESA Local Bus accelerator with 1 MB
- Maxi-Switch/Focus 101 Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mid Tower case with 2 fans
- High Resolution Mouse

INTEL 486DX-33	*$1769*
INTEL 486DX-50	*$1899*
INTEL 486DX2-50	*$1875*
INTEL 486DX2-66	*$1999*

TOP GUN

- 8 MB 70 ns RAM up to 32MB
- 256KB Cache
- 340 MB IDE Hard Drive
- 1.44 & 1.2 MB FLoppy Drive
- 17" Flat NI SVGA with .28 DP
- Genoa 32 bit True Color VESA Local Bus accelerator with 1 MB
- Maxi-Switch/Focus 101 Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mid Tower case with 2 fans
- High Resolution Mouse

2% Discount with Cash

INTEL 486DX-33	*$2345*
INTEL 486DX-50	*$2475*
INTEL 486DX2-50	*$2450*
INTEL 486DX2-66	*$2575*

★ Optional ATI Graphic Ultra Pro 2 M VRAM ....add $265

MONITORS

14" 1024SVGA .39	$215
14" 1024SVGA .28INT	$255
14" 1024SVGA .28NI	$285
15" 1024 FLAT .28NI	$420
17" 1280 FLAT .28NI	$810
Viewsonic 1	$225
Viewsonic 4	$282
Viewsonic 5E	$393
Viewsonic 5+	$480
Viewsonic 6E	$330
Viewsonic 6FS	$545
Viewsonic 7	$980
Viewsonic 8	$1540
NEC 3FGX	$630
NEC 4FG	$730
NEC 5FG	$1255
MAG MX15F	$560
MAG MX17F	$1030
NANAO F550i	$1050
SONY 1304	$565
SONY 1604	$985

VIDEO CARDS

SVGA 256K	$25
SVGA 512K	$38
SVGA 1M	$55
Diamond 24X	$143
Diamond Stealth 24VLB	$155
Orchid Fahrenheit 24	$154
Orchid Fahrenheit 24VLB	$158
GENOA 8500 VLB	$115
ATI Ultra Pro w/2M	$380

HARD DRIVES

Seagate 107	$200
Conner 120	$205
Conner 210	$305
Maxtor 130	$209
Maxtor 210	$295
Maxtor 340	$559
Western Digital 210	$289
Western Digital 340	$440

MB+CPU

386DX-40-128K	$176
486DX-33-128K VLB	$440
486DX-50-128K VLB	$590
486DX2-50-128K VLB	$545
486DX2-66-128K VLB	$680
486DX-33-256K EISA	$620
486DX-50-256K EISA	$729
486DX2-66-256K EISA	$860
UltraStor 24F EISA SCSI	$390

MISCELLANEOUS

Panasonic 1180i	$158
Panasonic 1123	$203
Panasonic1124i	$288
Panasonic1624	$343
Panasonic 4410	$624
TEAC 1.2	$53
TEAC 1.4	$45
Chinon 1.2	$50
Chinon 1.44	$45
Colorado 120	$160
Colorado 250	$205
Chicony 101	$20
Maxi 101	$30
Keytronic 101	$33
Focus 2001	$35
Focus 9001	$65
2400 Int Modem	$30
96/24 Fax/Modem	$55
3 Button Hi-Res Mouse	$12
TrackBall	$25
Creative Upgrade Kit	$499
Mitsumi CD ROM	$210

BEST BUY

- 4 MB 70 ns RAM up to 32MB
- 128 KB Cache
- 130 MB IDE Hard Drive
- 1.44 & 1.2 MB FLoppy Drive
- CTX 14" 1024INT SVGA with .28DP
- Cirrus Logic 1 MB Windows Accelerator with 16 million colors
- 101 Enhanced Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mini Tower or Desktop Case
- High Resolution Mouse

AMD 386DX-40	*$1060*
INTEL 486DX-33	*$1340*
INTEL 486DX-50	*$1480*
INTEL 486DX2-50	*$1450*
INTEL 486DX2-66	*$1585*

TRUE COLOR

- 4 MB 70 ns RAM up to 32MB
- 128 KB Cache
- 212 MB IDE Hard Drive
- 1.44 & 1.2 MB FLoppy Drive
- Genoa 32 bit True Color VESA Local Bus accelerator with 1 MB
- CTX 14" 1024NI SVGA with .28 DP
- 101 Enhanced Keyboard
- 2 serial, 1 parallel, 1 game ports
- Mini Tower or Desktop case
- High Resolution Mouse

INTEL 486DX-33	*$1499*
INTEL 486DX-50	*$1640*
INTEL 486DX2-50	*$1615*
INTEL 486DX2-66	*$1745*

2% Discount with Cash

Service and Warranty

- 2 years parts*
- 5 years labor
- On-site service available
- 30 day money back*
- Unlimited Free Tech Support
- Free Software Installation

VISA MasterCard

Business Hours (PST):
Mon-Fri : 8:30 to 5:30
Saturday: 10:00 to 4:00

*2% discount with cash
* Freight, software, printer & special order items are not refundable.
* One year warranty for disk drives.
* Price and availability are subject to change without notice.
* 15% restocking feewithin 30 day, no refund after 30 day
* The Intel Inside Logo is a trademark of Intel Corporation.
* All products referenced herein are trademarks of their respective companies.
* 2 year parts warranty for complete system only

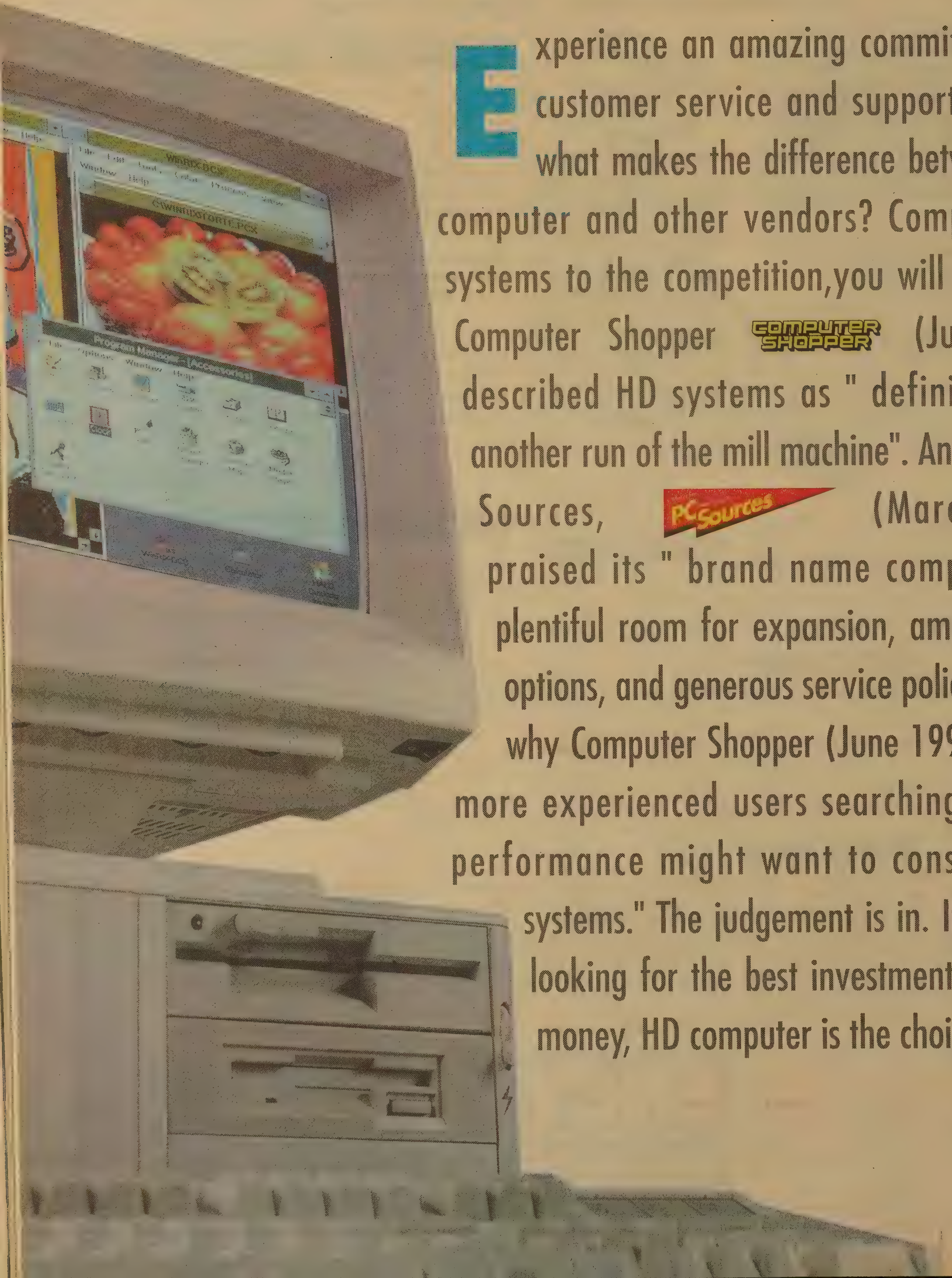
ENCY systems

(510) 226-1848

Fax: 1-510-226-0560

46743 Fremont Blvd., Fremont, CA 94538

YOU WILL NEVER BE ALONE WITH HD SYSTEM



Experience an amazing commitment to customer service and support. This is what makes the difference between HD computer and other vendors? Compare HD systems to the competition,you will see why Computer Shopper (June1991) described HD systems as " definitely not another run of the mill machine". And why PC Sources, (March1991) praised its " brand name components, plentiful room for expansion, ample setup options, and generous service policies." And why Computer Shopper (June 1991) said " more experienced users searching for top performance might want to consider HD systems." The judgement is in. If you are looking for the best investment for your money, HD computer is the choice.

Buy HD. . . for the value

HIGH QUALITY
HD

High Quality : Every HD computer is built to the highest standards of quality. First, We integrate our systems with high quality brand name components from reliable and well known manufacturers. Additionally, to ensure their highest quality and dependability, all our systems must undergo 72 hour burn- in tests before shipping. Our highly trained technicians will assemble every system according to stringent quality guidelines to make sure that your HD system will arrive in top shape right out of the shipping box.

Cost Efficiency : You could pay more for features that will not improve your overall performance. Our products are competitively priced based on configurations guaranteed to run standard or customized applications as we do not load unnecessary costs of software or hardware on our customers. We encourage your inquiry on our product packages -- from features, benefits and details to costs. We believe you should become a customer of our state - of-the-art systems and value packages

Solid Service : We firmly stand behind our products with the best service in the industry -- a comprehensive 1- year parts service and incredible Lifetime Labor warranty, FREE 365-Day-A- Year Technical Support, 30-Day Money-Back guarantee without restocking fee with no questions asked. That is why you find so many HD systems at the heart of critical installations in corporations, government and education. We are committed to provide you with the consistent support and service and to help you build your computing environment on a solid ground of dependable service and top- performance. Come and try us, We guarantee you are the best post- sale service with HD systems.

Solid Reputation :HD is the name you can trust. From its inception, HD has been progressing toward its ultimate goal -- to achieve total customer satisfaction. We pay mindful attention to the needs of our customers since customer satisfaction is critical to us. Our commitment is paying off : Both Computer Shopper (June 1991) and PC Sources (March1991) recognized and highlight the fact that HD consistently delivers the best value to our customer.

Custom Configuration : You can have a system built in a way that meet your needs. Our professional sales representatives will custom configure systems to your specifications from our large list of options and upgrades. Our sales representatives are unique in the competitive PC industry. To help our customers determine their needs, they all attend weekly professional on-the-job training. They will offer you the best solutions based on their experience and hardware and software knowledge.

And More : We encourage you to try us. Examine our product performance and prove our excellent support. Just pick up you phone and call our technically oriented sales representatives. You will get our proof within 3 minutes.

Free Software Options :

For every system purchased over $1000, you may choose one of the following free

Option 1- PFS:Window Works (For Windows)	**Retail Value $149**
Option 2- PFS Publisher (For Windows)	**Retail Value $149**
Option 3- PFS Business Plan (For Windows)	**Retail Value $129**
Option 4- PFS Prospect (Dos Version)	**Retail Value $129**
Option 5- PFS:First Choice (Dos Version)	**Retail Value $149**

First Choice

Top Performer for Window NT and File Servers

EISA VESA Local Bus

- 256K Cache Expandable to 512KB
- 8MB RAM Expandable to 64MB
- 1.2MB and 1.44MB Floppy Disk Drive
- 200MB 15MS SCSI Hard Disk
- EISA/VESA Local Bus 32 Bit EISA SCSI Controller
- 2 Serial, 1 Parallel,1 Game Ports
- Focus 9000 Keyboard
- Full Tower Case with 250W Power Supply
- Build in Math Coprocessor
- 14" Viewsonic 6 Monitor Ni 1024x768 .28 Dot Pitch
- 32 bit VESA Local Bus Card w/1MB VRAM
- 3-button Hi-res serial mouse
- MS-DOS 5.0
- Windows 3.1
- FREE SOFTWARE OPTION

Options:

340MB SCSI Hard Disk	**Add $350**
ATI Graphic Ultra Pro Vlb w/2MB Vram	**Add $350**
15" Mag Svga Monitor1280 x1024.28	**Add $350**
17" Viewsonic 7 Monitor 1280x1024 .28	**Add $750**
RAM upgrade	**$35/MB**

HD EISA VLB 486DX-33MHz	**$2595**
HD EISA VLB 486DX2-50MHz	**$2695**
HD EISA VLB 486DX-50MHz	**$2795**
HD EISA VLB 486DX2-66MHz	**$2895**

CORPORATE OFFICE: 1196 KERN AVE., SUNNYVALE, CA 94086 • TEL: (408) 720-0493 • FAX: (408) 720-1967
SACRAMENTO OFFICE: 2530 WATT AVE., SACRAMENTO, CA 95821 • TEL: (916) 483-4278 • FAX: (916) 483-4826
EL CERRITO OFFICE: 10005 SAN PABLO AVE., EL CERRITO, CA 94530 • TEL: (510) 528-0753 • FAX: (510) 528-0757

MON-FRI 7 : 30 TO 6 : 30 / SAT & SUN 10 : 00 TO 4 : 00
TECH SUPPORT - 1• 800 • 676 • 0164 / MON - FRI 9 : 00 TO 6 : 00/ SAT & SUN 10 : 00 TO 4 : 00
OPTIONAL ON-SITE SERVICE AVAILABLE

HD
COMPUTER

High Quality
Use quality parts and name brand components
Advanced quality control 72 hours burn-in

Satisfaction Guarantee
30 days money back guarantee No restocking fee,no questions asked

Great Service
lifetime labor, One year parts Life time toll-free technical support, open 7 days a week. One year free on-site service (Bay Area only)
Replacement parts shipped via 2nd-day air

Custom Configuration
Best fit customers specifications and budget!

Solid Reputation
6 years In Business

VISA UPS

For Overseas Customer

Pay By Credit Card
Credit Card Holder Name ----------------
Billing Address------------------------------
Bank PH #-----------------------------------
Credit Card #--------------------------------
Exp. Date -----------------------------------
For wire transfer please call for detail bank information

Innovation System for Graphic Stations

HD VESA Local Bus

- 256K cache expandable to 512 KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- 120MB 15MS IDE Hard Disk
- IDE 2FL/2HD Disk Controller
- 2 Serial, 1 Parallel 1 Game Port
- 101-key enhanced keyboard
- Mid -Tower Case w/ 230W Power Supply
- Build-in Math Coprocessor
- 14" Svga Non-interlaced monitor 1024x768.28 Dot Pitch
- 32bit ET -4000Vlb Svga Card w/1MB Vram
- (64K Max colors, 1280x1024 Max Resolution)
- 3-button Hi-Res Serial Mouse
- MS-DOS 5.0
- Windows 3.1
- FREE SOFTWARE OPTION

Options:	
- 200 MB Hard Disk	**Add $150**
- 32Bit Local Bus IDE Controller	**Add $100**
- 32Bit Orchid Fahrenheit 1280 VLB w/1MB	**Add $50**
- 15" Mag SVGA Monitor 1280x1024.28	**Add $350**
- 17" Viewsonic 7 Monitor 1280x1024 .28	**Add $800**
- RAM Upgrade	**$35/MB**

HD VLB 486DX-33MHz	$1695
HD VLB 486DX2-50MHz	$1795
HD VLB 486DX-50MHz	$1895
HD VLB 486DX2-66MHz	$1995

High Performance System for Windows and CAD Stations

486 ISA BUS

- 64K Cache Expandable to 512KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- 120MB 15MS IDE Hard Disk
- 1:1 Interleave 2FL/2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-Key Enhanced Keyboard
- Mini-Tower Case with 250W Power Supply
- Build-in Math Coprocessor
- 14" SVGA Non-Interlaced Monitor 1024x768 .28 dot pitch
- Windows Accelerator Card w/1MB Vram
- 3-button Hi-Res Serial Mouse
- MS DOS 5.0
- Windows 3.1
- FREE SOFTWARE OPTION

Options:	
- 256K Cache	**Add $50**
- 200MB 15 MS Hard Disk	**Add $150**
- Orchid Fahrenheit 1280 VA w/1MB Vram	**Add $150**
- Diamond Stealth SVGA w/ 1MB Vram	**Add $150**
- 14" Viewsonic 6 monitor NI.28	**Add $60**
- RAM upgrade	**$35/MB**

HD ISA 486DX-33MHz	$1545
HD ISA 486DX2-50MHz	$1645
HD ISA 486DX-50MHz	$1745
HD ISA 486DX2-66MHz	$1845

Affordable System for Business and Home Users

486SX and 386 ISA BUS

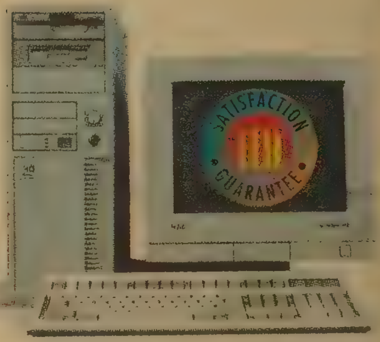
- 4 MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- 120MB 16MS IDE Hard Disk
- 1:1 Interleave 2FL./2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Ports
- 101-Key Enhanced Keyboard
- Mini- Tower Case w/200W Power Supply
- 14" SVGA Monitor 1024x768 .28 Dot Pitch
- 16-bit SVGA Card 1024x768 w/ 1MB
- 3-button Hi-Res Serial Mouse
- MD-DOS5.0
- Windows 3.1
- FREE SOFTWARE OPTION

Options:	
- 200MB 15MS Hard Disk	**Add $150**
- Diamond Speedster 24X w/ 1MB	**Add $100**
- 14" SVGA Non-interlaced monitor .28	**Add $50**
- Viewsonic 6 monitor	**Add $100**
- RAM Upgrade	**$35/MB**

HD 486SX-25MHz 64K Cache	$1295
HD 386DX-40MHz 64K Cache	$1195
HD 386DX-33MHz 64k Cache	$1195

GREAT SERVICE

CUSTOMER CONFIGURATION



Terms and Conditions:

- 30 days money back guarantee
- Shipping charge not refundable
- 1 year parts, lifetime labor warranty
- Toll free, 7 days a week lifetime technical support
- Major credit cards accepted
- No surcharge for VISA, MC and Discovery cards
- Quality PO's accepted from Academic, Corporate and Public Institutions.
- APO's welcome
- Prices and specifications Subject to change without notice
- Toll free within United States only

Ideal Systems for Students and As Gifts

386SX ISA BUS

- 2MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- 80MB 18MS IDE Hard Disk
- 1:1 Interleave 2FL/2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-Key Enhanced Keyboard
- Mini-Tower Case w/ 200W Power Supply
- 14" SVGA Monitor 640X480.39 Dot pitch
- 16bit SVGA card w/256KB
- 3-button hi-res serial mouse
- MS-DOS 5.0
- FREE SOFTWARE OPTION

Options:	
- 120MB 18MS Hard Disk	Add $100
- 14" SVGA 1024x 768 Monitor/1MB Card	Add $100
- Windows 3.1	Add $45
- RAM Upgrade	$35/MB
HD 386SX-33MHz	**$995**
HD 386SX-25MHz	**$950**

HIGH QUALITY
HD

SOUND BLASTER MULTIMEDIA UPGRADE KIT

- Sound blaster pro card
- Internal CD-ROM drive
- Master disk with Microsoft Windows 3.1
- Software library CD-ROM package
  - Marcomind Action
  - Authorware Star
- Free CD-ROM Titles
  - Microsoft Bookshelf
  - Sherlock Holmes, consulting detective
  - Creative Sound
  - Microsoft works for windows
- Midi Kit

$595

SOUND BLASTER
MULTIMEDIA UPGRADE KIT
MIDI KIT

Corporate Office: 1196 Kern Ave., Sunnyvale, CA 94086 Tel:(408) 720-0493 • Fax (408)720-1967
Sacramento Office: 2530 Watt Ave., Sacramento, CA 95821 Tel: (916) 483-4278 • Fax (916) 483-4826
El Cerrito Office:10005 San Pablo Ave.,El Cerrito, CA 94530 Tel: (510) 528-0753 • Fax (510) 528-0757

HD
COMPUTER

MON-FRI 7:30 TO 6:30 / SAT & SUN 10:00 TO 4:00
TECH SUPPORT - 1• 800 • 676 • 0164 / MON - FRI 9:00 TO 6:00/ SAT & SUN 10:00 TO 4:00
OPTIONAL ON-SITE SERVICE AVAILABLE

LOOK NO FURTHER. . .

We Have Everything You're Looking For—Call And Be Amazed!

PORTABLE COMPUTER CENTER

WE ARE ABLE TO CUSTOM BUILD ANY DESKTOP CONFIGURATIONS INTO OUR PORTABLES TO SUIT YOUR NEED. PLEASE CALL FOR OPTIONS LIKE INTERNAL CD ROM, TAPE BACK-UP SYSTEM, UP TO ONE GIGABYTE IDE, ESDI OR SCSI HARD DISKS.

HI CONTRAST VGA PLASMA PORTABLE

- 4 MB Memory (Expandable To 32 MB)
- 1.2 MB & 1.44 MB Floppy Disk
- **120 MB IDE Hard Disk***
- SVGA Card w/1 MB
- 2 Serial/Parallel Ports
- 200 Watt PS / 110/220 V
- Plasma Display On/Off Switch
- External Display Up To (1280x1024)
- 2 Full / 1 Half Length Slots Free
- Deluxe Carrying Case

150:1 RATIO 101 KEY

486DX2-66 w/256K Cache	$2645
486DX-50 w/256K Cache	2495
486DX-33 w/256K Cache	2345
386DX-33 w/64K Cache	2045

SUPER VGA COLOR CRT PORTABLE

- 4 MB RAM (Up To 32 MB)
- **120 MB IDE Hard Disk***
- All-Media 1.2 & 1.44 Floppy
- 2 Serial/Parallel Ports
- 3 Drive Bays
- 5 16 Bit Slots
- SVGA Card w/1 MB (32K Colors)
- Carrying Case

9 5 1024x768 101 Keys

486DX2-66/50/33 256K VESA Local Bus	$CALL
486DX-66/50 MHz 256K Cache	2795/2675
486DX-33 MHz 256K Cache	2495
386DX-33 MHz 64K Cache	2145
386SX-25 MHz	2125

★ **REMOVABLE HARD DRIVES ARE AVAILABLE**

STORAGE SYSTEM LCD PORTABLE LUNCH BOX PC

(Looks Like and Has Same Configuration As The Plasma Above)

Case Only	$745
486DX2-66 MHz w/256K Cache	2175
486DX-50 MHz w/256K Cache	2045
486DX-33 MHz w/256K Cache	1875
386DX-33 MHz w/128K Cache	1595

STORAGE SYSTEM ALL-IN-ONE PC

$1345 SVGA 386SX-25 MHz

- 1 MB RAM Up To 16 MB
- 1.44 MB F.D. (Option Ext 1.2)
- 40 MB H.D. Up To 340 MB
- 16 Bit SVGA Video/101 Keyboard
- 2 Serial/1 Parallel • Carrying Bag
- Two 16-Bit Expansion Slots

DESKTOP SYSTEM MONTHLY SPECIAL

486DX-66/50/33 (LOCAL BUS)	**$BEST**
486DX2-66 w/128K Cache	**1475**
486DX-50 w/128K Cache	**1345**
486DX-33 w/128K Cache	**1245**
486DX-33 CYRIX w/128	**1145**
386DX-33 w/64K Cache	**975**
386SX-33	**925**

ALL SYSTEMS ABOVE INCLUDE:

- 4 MB RAM (70ns)
- 130 MB Hard Drive 16ms
- Teac 1.2 MB or 1.44 MB Floppy
- SVGA Monitor (1024x768 .28 dpi)
- SVGA Card (1024x768)
- IDE 2HD/2FD Controller
- 2 Serial/Parallel/Game Port
- Enhanced 101 Keyboard
- Mini Tower or Desktop Case

★ **FREE 3 Button Mouse**

OPTIONS:

256K Cache	**Add $25**
Non-Interlace Monitor	**Add 40**

PLEASE CALL FOR:
★ Other Configurations
★ System Upgrade/Repair
★ Hardware/Software Installation

CONTROLLER & ADD-ON CARDS

Adaptec SCSI 1742A	$375
Adaptec SCSI 1542B	215
Adaptec SCSI 1522	140
Bustek SCSI BT 542BK	165
Future Domain SCSI 1670	155
Ultrastor SCSI 14F	225
IDE Intelligent Controller For 4 FD	75
IDE Controller w/2S/P/G	25
Ethernet Card 16 Bit COAX	75

MONITORS

Super VGA (1024x768 .28mm)	$259
Super VGA (1024x768 .28mm) Non-Interlaced	295
Viewsonic 6E Non-Interlaced	335
15" SVGA (1280x1024 .28) Non-Interlaced	545
17" SVGA (1280x1024 .26) Non-Interlaced	865
20" SVGA (1280x1024 .31) Non-Interlaced	1550

VIDEO CARDS

Diamond Stealth 24 Bit ISA	$175
Diamond Stealth 24 Bit VESA	175
Orchid Fahrenheit 24 Bit	210
SVGA w/1 MB, 512K	60/40
SVGA Hi-Color (1280) w/1 MB	79

FAX MODEM/MICE

144/144 Fax Modem Int	$209
9600 Baud Modem Int/Ext	195/215
96/24 Fax/Modem for Windows	68
96 Send Fax/2400 Modem	35
Logitech Mouseman Ser/Bus	65
Logitech Cordless Mouse	84

DRIVES

Toshiba CD-ROM 200ms Fast	$485
Maxtor 540 MB IDE/SCSI	845
Maxtor 340 MB IDE/SCSI	565
W. Digital 340 MB IDE	475
Maxtor 213 MB IDE	325
Maxtor 130 MB IDE	225
Colorado 250 MB Tape Back-Up	225
Colorado 120 MB Tape Back-Up	165
Teac All Media 1.2 & 1.44 MB Drive Combo	145
Teac 1.2/1.44 MB	55/50

Prices subject to change w/o notice

Dealer Pricing & Quantity Pricing Available

STORAGE SYSTEM ENGINEERING SERVICE
3350 Scott Blvd., Building 19, Suite 1902
(near Bowers Ave.)
Santa Clara, CA 95054

(408) 727-6040

Your Source For Reliable Computers & Peripherals Since 1983

S.F. Lawrence Expwy. S.F. Bowers San Tomas 101 N S S.J. S. Central Expwy. Scott Blvd. S.J.

FAX: (408) 727-6042
Hours: 10am-6:30pm M-F
12noon-4:00pm Sat

MasterCard VISA

SMALL CART - - BIG VALUE!!

SELECT FROM 10 DIFFERENT CARTS!

12" 16¾"

- Mouse board pulls out right or left
- For laser printer, paper shelf detached and printer tray may be lowered
- 2 Oak finishes in stock; black available in 1-3 days

ALPHA
FINE COMPUTER FURNITURE

Open M-F 9:30-5:30
Wed 'Til 8, Sat 10-5
2241 N. Main, Walnut Creek

(800) 974-0277
(510) 930-0277

continued from page 134

and LED displays in the wristpad tell if you're overdoing it and need to take a break. The software is quite sophisticated and is not just a timer.

I really liked the $149 Abacus keypad for the PowerBook. You can use it as a standalone standard memory calculator with a built-in eight-character LCD display, and then send the result directly to the application with a Send key. It also will provide PowerBook users with fifteen Function keys. I've never found any of the many Calculator desk accessories to be an adequate substitute for a real calculator. The Abacus provides that functionality, and you don't have to re-type the result. However, it is a lot more expensive. Save your pennies.

BYTES AND PIECES

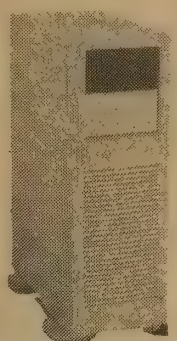
• Be on the lookout for a file named CPro 1.41.sea, which pretends to be the self-extracting archive update to the Compactor Pro compression/archival program. It is really a Trojan Horse. A Trojan Horse is a program that masquerades as something harmless and performs some covert action, usually destructive. The effects may be noticed immediately, when the program erases your hard disk, or later, with some insidious result.

The CPro Trojan will attempt to erase your startup volume, and any floppy in drive one. This Trojan horse has only been sighted in Michigan, but could have traveled around the world over computer networks. The CPro Trojan can be identified using ResEdit. The illegitimate version can be recognized by a 312K SND resource called "log jingle."

• ZByte Games has just put out an interesting deck of cards with a computer design. Instead of the traditional suits, the cards use logical gate symbols (AND, OR, NOT, and BYTE). The face cards are all famous mathematicians, such as Babbage, Pascal, and Ada Lovelace. The cards employ decimal and binary numbers, and the set comes with a booklet describing new games that use the unique features of the deck. The $7.95 deck is available at the Tech Center in San Jose, and mail order for $10.68 (includes shipping and tax) from P.O. Box 27676, San Francisco, CA 94127.

• If you are interested in learning more about QuickTime digital video technology, BMUG has many solutions. If you like to learn by doing, you should own a copy of the TV-ROM, which has four hundred MooV files for you to use in your projects. It's received rave reviews from the multimedia magazines. If you want to start slower, read our new book, *Quicker QuickTime* by Judith Stern and Robert Lettieri, our multimedia experts. They've aimed the book for a nontechnical audience, with step-by-step instructions for viewing, editing, and making your own digital movies. The TV-ROM is $50 and the book is only $12.95, which includes a disk containing QuickTime 1.5, the MoviePlayer application, and some QuickTime movies. Both are available from the BMUG office. ■

SPECIAL



Dual cooling fans, Easy Access swing open side doors, Slide 'n Snap drive rails, 4 exposed and 3 hidden drive bays, 230W UL power supply.

$152

upgrade to 250W UL PS	ADD $12
upgrade to 300W UL PS	ADD $25
Medium Size Available Now!	**$125**

EVERYDAY LOW PRICES

CASES & POWER SUPPLIES

DELUXE Full-208GT (2 FANS, Easy Access Side Doors, 4 Exp'd, 3 hid'n, 230W UL)	$152
Mini-104T (4 exp'd, 1 hidden, 200W PS)	52
Med-106T (5 exp'd, 3 hid'n, 200W UL PS)	75
Full 108T (4 exp'd, 7 hid'n, 230W UL PS)	99
Full-42T (4 exp'd, 5 hidden, 220W UL PS)	80
Full-51T (7 exp'd, 1 hidden, 220W UL PS)	80
Mini- V103T (4 Exp'd, 5 Hidden, 220W PS)	70
Desktop- S203D (4Exp'd, 2 Hidden, 200W PS)	75
Desktop- K101D (1Exp'd, 2 Hidden, 100W PS)	70
Desktop- K101D (1Exp'd, 1 Hidden, 60W PS)	70

POWER SUPPLIES

Full PS 230W UL/250W UL/300W UL	$49/59/77
Baby PS 200W /200W UL/230W UL	37/41/45

FLOPPY, HARD, TAPE, & CD-ROM DRIVES

TEAC 1.2MB 5.25"/1.44MB 3.5 Drive	$49/43
IDE, SCSI, & ESDI Hard Drives	CALL
Removable IDE Hard Disk Kit	38
COLORADO 120MB/250MB	175/229
SONY CD-ROM (380MB, Int.)	325
NEC CDR 74/84 CD-ROM 280ms, 300KB/s, ext/int	605/545
Goldstar CD ROM 380MB Ext	249
NEC Multimedia Upgrade Kit (Int/Ext)	925/995
Sound Blaster Pro Multimedia Kit w/6 CDTitles (Int/Ext)	525/585

VGA CARDS

MGP/MCGP/VGA	$14/19/36
Diamond Speed Star 24X 1M 16 mil. colors	179
Diamond Stealth VRAM Hi-Colors 1M	225
Diamond Stealth 24-DRAM/24-DRAM VLB	189/189
Diamond Pro VRAM 1M/2M	289/399
TsengLab ET-4000 ISA/VLB 65k Colors	88/145
AMI Fast View EISA VGA Graphic 1M	296
ATI Graphic Ultra Plus 2 DRAM	345
ATI Graphic Ultra Plus 2 DRAM w/mouse	379
ORCHID Pro IIs Hi-Colors ISA 1MB DRAM	139
ORCHID Fahrenheit 1280 ISA 1MB VRAM	225
ORCHID Fahrenheit VLB 24 bits 1MB	175
ACUMOS SVGA 245K/512K	33/44
Trident SVGA 1MB (VRAM)	59

BIG SALE

WHY DO THEY ALL PURCHASE LYNX PRODUCTS? TOTAL CUSTOMER SATISFACTION GUARANTEED!

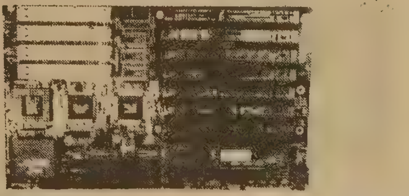
ADAPTEC, AMD, ASYST, AT&T, CIRUS LOGIC, CNT, DIAS, FUJITSU, GE, HEWLETT PACKARD, INTEL, LSI LOGIC, MICROSOFT, NASA, NATIONAL SEMI, NEC, PG&E, PELLUCIDE, SEAGATE STANFORD UNIV., SILICON GRAPHICS, SUN MICROSYSTEMS, UCSC, UC BERKELEY, WESTINGHOUSE ELECTRIC CORP, IBM, STATE WATER RESOURCE BOARD, AND MANY MORE.

1 YEAR PARTS/ 3 YEARS LABOR/ LIFETIME TECH SUPPORT LIMITED WARRANTY

Fastest 486 Motherboard!

LYNX 486-33/50 LOCAL BUS

SX/DX/DX2 (same board)



(Direct from Manufacturer)

*Two Vesa Local Bus Slots (Standard)

*CONTAQ chipset and AMI BIOS
Norton SI: 75.70 @ 33MHz, 107.20 @ 50MHz
Landmark: 160.2 @33MHz, over 200 @50MHz
100% Compatible w/ DOS, OS/2, XENIX, UNIX, NOVELL NETWARE

VLB 0K/64K/256K	**$110/125/155**
ISA	**$100/115/145**

PC MAGAZINE

Editor's Choice
Sep. 1992
Volume 1 Number 6 (U.K)

ISA/IDE CACHE CONTROLLER (DC-600B)

- <0.3 msec Disk Average Seek Time
- Max Data Transfer Rate (ISA to cache) : 5 MB/sec
- Max Data Transfer Rate (Disk to cache) : 5 MB/sec
- 528MB Drive support for DOS & Windows
- Supports up to 4 IDE drives & 2 Floppy drives
- Cache expandable to 16MB

$150

VESA Bus IDE CACHE CONTROLLER (DC-680)

- < 0.3 msec Disk Average Seek Time
- Max Data Transfer Rate (VESA BUS to cache) : 20 MB/sec
- Max Data Transfer Rate (Disk to cache) : 5 MB/sec
- Supports up to 4 IDE drives & 2 Floppy drives
- WD 1003 Emulation Mode Support
- > 528MB Drive support for DOS & Windows
- Cache expandable to-16MB

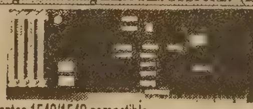
$225 (local bus)

ESIA/IDE CACHE CONTROLLER (DC-620B)

- < 0.3 msec Disk Average Seek Time
- Max Data Transfer Rate (EISA to cache) : 16.5 MB/sec
- Max Data Transfer Rate (Disk to cache) : 5 MB/sec
- Supports up to 4 IDE drives & 2 Floppy drives
- WD 1003 Emulation Mode Support
- > 528MB Drive support for DOS & Windows
- Cache expandable to 16MB

$225

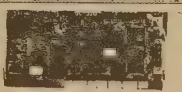
Caching + Mirroring EISA Fast SCSI Host (DC-820)



- Adaptec 1540/1542 compatible
- Hardware Disk Mirroring Support
- Cache expandable to 16MB
- High Speed 32 Bit bus master, burst data transfer up to 33MB/sec
- Fully support SCSI-I & SCSI-II protocols
- Coexists with other SCSI, ESDI or IDE card
- Support up to 8 drives for DOS 5.0
- Support Max. DOS disk capacity of 4.5 GB

$465

Disk-Mirroring EISA/SCSI Host Adapter (DC-320)



- Adaptec 1540/1542 compatible
- Hardware Disk Mirroring Support
- High Speed 32 Bit bus master, burst data transfer up to 33MB/sec
- Fully support SCSI-I & SCSI-II protocols
- Coexists with other SCSI, ESDI or IDE card
- Support up to 8 drives for DOS 5.0
- Support Max. DOS disk capacity of 4.5 GB

$345

MONTHLY SPECIALS

SPECIAL

Full Tower 42T/51T w/PS	$80/80
Mini Tower 104 w/PS	$52
TEAC 1.2 MB/1.44MB FDD	$49/43
IDE I/O (2S, 1P, 1G)	$18
Removable IDE HD Kit	$38
HP LaserJet IV (600dpi, 8mm)	$1385
Sony CD-ROM (Int 380MB)	$299
Touch CD-ROM (Ex 380MB)	$245
Keytronic Keyboard (USA Made)	$34
SVGA Monitors 14" (1024x768 .28) IT/NI	$249/289
SVGA Monitors 15" (1280x1024 .28) NI	$425

Genius

Hi-ResIsn Mouse	$15	Genius 4500D Scanner	$89
Genius Clixes	$15	Genius 4500W Scanner	$95
Hi-Point	$50	Genius B105W Scanner	$169

Lynx		Board + CPU	Basic System
486DX-50/64CU	EISA	$770	$935
486DX-33/64CU	EISA	640	805
486DX-50/64CU	ISA	575	735
486DX2-66/64CU	ISA	675	835
486DX-33/CU	ISA	430	590
486DX-33/64CU	ISA	445	605
486SX-25/CU	ISA	CALL	CALL
386DX-40/64CU	ISA	169	339
386DX-33/64CU	ISA	160	330
386DX-25		160	330
386SX-33	ISA	109	279
386SX-25	ISA	99	269
286-20 (512K)	ISA	82	259
286-16 (512K)	ISA	66	239

EVERYDAY LOW PRICES

VIDEO DISPLAY MONITORS

Mono 12"/14"	$75/94
ADI MICROSCAN 3E (1024X768 .28 NI)	330
GOLDSTAR 1460 PLUS (1024X768 .28)	269
GOLDSTAR 1490 PLUS (1280X1024 .28 NI)	599
NANAO 9070U/9080i (16" 1024X768 .28)	955
NANAO F550I (17" 1280X1024 .28)	1145
NANAO F5601 (17" 1280X1024 .25)	1725
NANAO T660 (20" 1280x1024 .31 NI)	1825
NANAO T660I (20" 1280x1024 .31 NI, Trinitron)	2585
NEC 3FG/4FG (15"1024X768 .28)	649/749
NEC 5FG (OEM) (17"X1280X1024 135MHz)	1300
NEC 6FGX (OEM) (21"X1280X1024 135MHz)	2385
SEIKO CMI 1450 (NI)	425
SEIKO CMI 2050 (1024X768 .31 NI)	1545
SONY 1304S (14" 1024X768 .25 NI)	565
SONY 1604S (OEM) (17" 1024X768 .25)	995
SONY GDM 1936 (20" 1280 X1024 .30)	2090
VIEWSONIC 5E/5+	420/525
VIEWSONIC V6E (14" 1024X768 .28)	335
VIEWSONIC V6FS (15" 1024X768 .28)	575
VIEWSONIC V7 (17" 1280X1024 .28)	989
VIEWSONIC V8 (20" 1280X1024 .31)	1559

KEYBOARD, MOUSE & SCANNERS

MaxiSwitch/KeyTronic 101 Keyboard	$35/35
OMNIKEY 101 NI/102/ Ultra	69/79/99
LOGITECH MouseMan Ser/Bus NEW	64/66
LOGITECH TrackMan Ser/Bus /PT	72/79/99
MicroSoft Mouse Ser/Bus	84/89
Handy Mouse	12
Microsoft DOS 5.0/Microsoft Windows 3.1	45/45

MODEM & INTERFACE CARDS

2400 bps Modem Int/Ext	$39/80
2400 bps Data+9600 bps Send/Recv Fax Int Modem	67
9600 V.32 + MNP + V.42 bpsInt/Ext Modem	285/399
AT/IO (2S/1P/1G)	14
IDE 1:1 2HD/2FD Controller W/Cable	14
IDE 1:1 2HD/2FD & 2S/1P/1G W/Cable	18
IDE 1:1 2HD/4FD Controller	45
AT 1:1 MFM 2HD/2FD Controller	45
Serial (RS232) Card/Parallel (Printer) Card	13/14

LOCAL AREA NETWORKS

Ethernet NE-1000/NE-2000 Coaxial	$78/88
Ethernet NE-1000/NE-2000 10-Base T	94/104
ARCNET 8/16 Bit Coaxial Star	41/64
ARCNET 8/16 Bit Twisted Pair	47/74
MAXLANStarter Kit (8 bit/16 bit)	185/199
LANtastic AE-2/AE-3 Starter Kit	479/549
LANtastic AE-2/AE-3 Adapter	219/249

NEW Location

Leopard Microsystems INTERNATIONAL

LYNX

STORE HOURS

MON-FRI 9AM-6PM
SAT 10AM-5PM
SUN BY APPT. ONLY

SINCE 1987

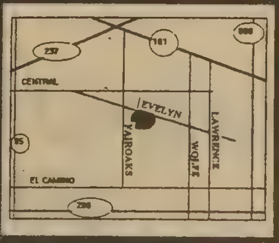
624 E. EVELYN AVENUE, SUITE A SUNNYVALE, CA 94086

NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

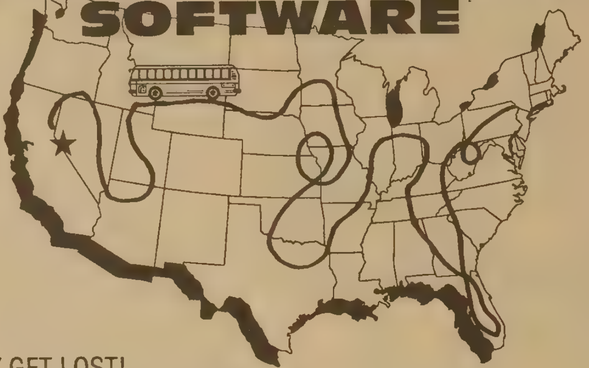
Prices reflect special discount

CALL FOR PRICES

(408) 481-9288 FAX:(408) 481-0866



FUNNY THINGS HAPPEN TO PEOPLE ON THE WAY TO HERB'S DISCOUNT SOFTWARE

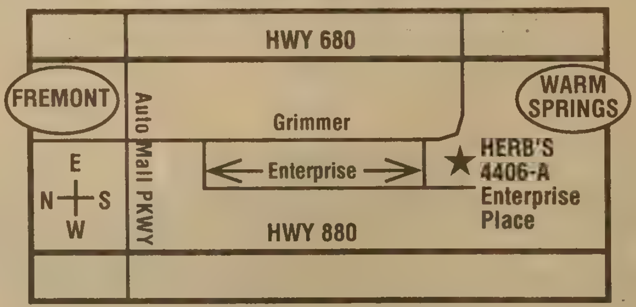


- THEY GET LOST!
- THEY SEE PARTS OF FREMONT THEY NEVER KNEW EXISTED
- THEY RUN OUT OF GAS
- THEY PASS THE NUMI PLANT
- THEY SEE THE HIGHWAY PATROL TRUCK WEIGHING STATION
- THEY STOP FOR LUNCH AND SOMETIMES DINNER TOO!
- THEY AGE AND HAVE BIRTHDAYS
- THEY SEE PRETTY SUNSETS AND SUNRISES
- THEY MEET OTHER PEOPLE TRYING TO FIND HERB'S
- THEY RECAP THEIR TIRES
- THEY STOP POLICE, MAIL CARRIERS, UPS DRIVERS, AND ASK FOR DIRECTIONS
- THEY WATCH THE SEASONS PASS
- THEY LEARN THAT DURHAM RD. WAS RENAMED AUTO MALL PARKWAY
- THEY FIND THERE REALLY IS A STREET NAMED GRIMMER
- THEY DISCOVER THE DIFFERENCE BETWEEN ENTERPRISE PLACE AND STREET
- THEY PUT THEIR CHILDREN UP FOR ADOPTION
- THEY BUY MAPS
- THEY LET THEIR FAMILIES KNOW THEY'LL BE LATE FOR DINNER
- THEY ENJOY THE CHALLENGE
- THEY CURSE AND CRY

BUT, STILL THEY COME AND COME AND COME FOR OVER 10 YEARS THEY'VE BEEN COMING. MANY HAVE MADE IT, SOME HAVE NOT.

THINK YOU ARE UP TO THE CHALLENGE? COME ON, GIVE IT A TRY. HERE'S THE TREASURE MAP TO HERB'S WHERE THE GREAT BUYS ARE BURIED, AND WELL WORTH DIGGING OUT!

IF YOU GET LOST, GIVE US A CALL, WE'LL DO OUR BEST TO GET YOU HERE.



LOOK FOR A ROW OF TAN WAREHOUSES NOT RETAIL STORES

HERB'S DISCOUNT SOFTWARE

4406 A. ENTERPRISE PLACE, FREMONT, CA
(510) 490-6335 OPEN M-S: 10-6 SUN: 12-4

VISA MasterCard

WHAT IS BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its fourteen thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 350+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:30–9:30(or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West and BMUG South are monthly meetings held in San Francisco and San Jose.

The BMUG office, 2055 Center St. (a half block from the BART station), is open to the public 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic handholding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM™*, a fantastic collection of public domain QuickTime videos.

Our new graphic user interface FirstClass 18-line. BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. With our multiline capability, you can have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most electronic services. BMUG can also be reached through the Internet international network through UG0001@applelink.apple.com.

To get further information about BMUG please write to: BMUG, 1442A Walnut St., #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or fax (510)849-9026. ■

SCIENTECH SILVER SERIES!
HIGH QUALITY & PERFORMANCE PRODUCTS FOR LE$$
5 YEAR LABOR WARRANTY

SILVER SERIES SYSTEMS

LOCAL BUS Systems

486DX2-66 MHz 64K	$1256
486DX-50 MHz 64K	$1153
486DX2-50 MHz 64K	$1128
486DX-33 MHz 64K	$1019

EISA Systems

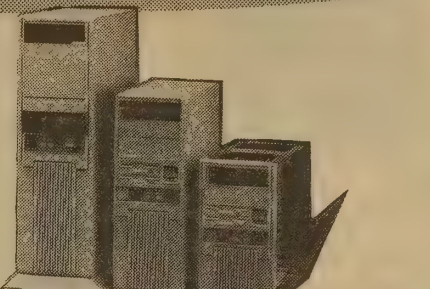
486DX2-66 MHz 64K	$1419
486DX-50 MHz 64K	$1348
486DX2-50 MHz 64K	$1291
486DX-33 MHz 64K	$1188

ISA Systems

486DX2-66 MHz 64K	$1216
486DX-50 MHz 64K	$1120
486DX2-50 MHz 64K	$1088
486DX-33 MHz 64K	$985
486SX-25 MHz	$810
386DX-40 MHz 64K	$733
386DX-33 MHz 64K	$729
386SX-25 MHz	$671

SILVER SERIES INCLUDES:

- Intel Microprocessor
- Math-coprocessor socket
- AMI BIOS with Setup Utilities
- Mini-Tower case w/250W power supply,
- 1MB 70ns RAM (HI Speed)
- Teac 1.2MB or 1.44MB Floppy Drives
- 40MB IDE Hard Disk
- 2H/2F IDE Controller
- 2 Serial/1 Parallel/1 Game Ports
- Super VGA (1024x768, .28dp)
- Super VGA Card w/1MB
- Enhanced 101-key keyboard



SILVER SERIES UPGRADES

CACHE UPGRADES

From 64K to 128K	$15
From 64K to 256K	40

MEMORY UPGRADES

1MB x 9, 70ns	$\$31^{50}$
4MB x9, 70ns	118^{50}

CASE UPGRADES

Baby At Desktop w/200W ps	$9
Medium Tower w/250W ps	21
Full Tower w/250W ps	38

HARD DISK UPGRADES

80MB, 15ms	$52
120MB, 15ms	90
170MB, 15ms	111
200MB, 15ms	175
340MB, 15ms	317
500MB	693

VIDEO DISPLAY UPGRADES

Tseng Labs ET4000	$\$15^{50}$
Tseng ET 4000, VESA Local Bus w/1MB (DRAM) 1280x1024	59
ATI Ultra Pro VESA Local Bus w/2MB 33MHz Only	348
ATI Ultra Pro w/2MB 1280x1024, 33 Win Accel	340
ATI Ultra w/2MB w/Mouse 1280x1024, Win Accel	240
ATI Ultra w/1MB w/Mouse 1280x1024, Win Accel	190
Diamond Stealth w/1MB (VRAM) 1280x1024 Windows Accel	140
Diamond Speedstar 24X w/1MB (VRAM) 1280x1024	94
Diamond Speedstar 24 w/1MB (DRAM) 1280x1024	74
Orchid 805 VESA Local w/1MB 1024x768	84
Orchid Pro IIs w/1MB 1024x768	84
Orchid Fahrenheit 1280 w/1MB Win Acc	74
Orchid Prodesigner IIs w/1MB Hi-Color	71
Orchid Prodesigner II w/1MB 1024x768	59
Genoa LV 8500 w/1MB	92

SOCOS

1402 14" 1024x768 SVGA, Interlace, .28dp	$11
1448 14" 1024x768 Non-Interlace, .28dp	47
1548 15" 1280x1024 Interlace, .28 dp	160

VIEWSONIC

4E 14" 1024x768, 28dp	$47
6E 14" 1024x768 Non-Int. .28dp	88
5E 14" 1024x768 Ultra Non-Int. .28dp	150
5+ 14" 1024x768 Ultra Non-Int. .28dp	253
6FS 15" 1024x768 Ultra Non-Int. .28dp, Flat	325
7 17" 1280x1024 Ultra Non-Int. .31dp, Flat	725
8 20" 1280x1024 Ultra Non-Int. .31dp, Flat	1283

SONY

1304S 14" 1024x768 .25dp Trinitron Tube	320
1604 16" 1024x768 .25dp Trinitron Tube	732

CPU & MEMORY

CPU's

486-66DX2	$540
486-50DX	437
486-50DX2	412
486-33DX	309
386-40	73
386-33	68

MEMORY MODULE

1x9-70ns	$\$31^{50}$
256x9-70ns	8^{50}
4x9-70ns	119

5 YEAR LABOR, 1 YEAR PARTS WARRANTY
COMPLETE UPGRADES AVAILABLE
CUSTOM CONFIGURATION AVAILABLE

Corporate, Government, and University PO's accepted.
All specifications & prices are subject to change W/O notice. Not responsible for typographical errors.

NOTEBOOKS

art

CHAPLET NOTEBOOKS

486SLC-25MHz Notebook
•w/HD (see below) • 1.44 Floppy Drive •2MB

80MB Model	$1345
120MB Model	1469
200MB Model	1695
RAM Upgrade to 4MB	$52

386SL-25MHz Notebook

•w/HD (see below) • 1.44 Floppy Drive •2MB

60MB Model	$1294
80MB Model	1345
120MB Model	1469

Upgrades

2MB Memory Card	$103
4MB Memory Card	206
9600/4800/2400 Sed/Recv/Fax Modem	88
Extra Battery	49
Battery Charger, also for add-on battery	88
Leather Carrying Bag	50

386Sx-25MHz Notebook

•1.44MB Floppy Drive •2MB	$875

386SX-25MHz Notebook

•1.44MB Floppy Drive •4MB	$945

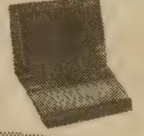
Upgrades

60MB Conner HD	$225
80MB Conner HD	285
120MB Toshiba HD	430
2MB Memory Card	115
4MB Memory Card	220
9600/4800/2400 Sed/Recv/Fax Modem	85
Battery Charger	85

ALL Notebooks come with vinyl carrying case, AC adaptor, and DOS 5.0

BONDWELL NOTEBOOKS

486SLC-25MHz 80MB	$1418
486SLC-25MHz w/Removable Cartridge 2X42M HDD	1702
386SXL-33MHz 80MB	1324
386SXL-33MHz w/Removable Cartridge 2X42M HDD	1607
386SL-25MHz 60MB	1020



NETWORKING PRODUCTS

ETHERNET NIC

ETHER-8+ 8-bit Coax Ethernet Card (NE-1000 compatible)	$61
ETHER-16+ 16-bit Coax Ethernet Card (NE-2000 compatible)	67
ETHER-8TP+ 8-bit 10BASE-T Ethernet Card (NE-1000 compatible)	61
ETHER-16TP+ 16-bit 10BASE-T Ethernet Card (NE-2000 compatible)	67

TOKEN-RING NIC

TOKEN-8 8-bit Token Ring 16/4mbps Card (100% IBM compatible)	$400
TOKEN-MC Micro-channel Token Ring Card for IBM PS/2	400

POCKET LAN ADAPTER

PE-1200 Pocket Ethernet Adapter for Laptop (Coax)	$166
PE-1200TP Pocket Ethernet for Laptop (Twisted Pair)	166
PA-1200 Pocket ARCNET Adapter for Laptop (Coax/Star)	147
PA-1200TP Pocket ARCNET Adapter for Laptop (Twisted Pair)	147

HUB

ETHER-H9 9-port 10BASE-T Ethernet Hub	$227
ETHER-H12 12-port 10BASE-T Ethernet Hub	460

COMPONENTS

GRAPHIC CARDS

Trident 8900 w/1MB (1024x768 256 Colors)	$53
Tseng Labs ET4000 w/1MB (1024x768 256 Colors)	68
Tseng ET 4000, VESA Local Bus w/1MB (DRAM) 1280x1024	110
ATI Ultra Pro VESA Local Bus w/2MB (VRAM) 1280 x1024, 33MHz Only	406
ATI Ultra Pro w/2MB (VRAM) 1280x1024, Windows Accel	391
ATI Ultra Plus w/2MB (DRAM) w/Mouse 1280x1024, Windows Accel	299
ATI Ultra w/1MB (VRAM) w/Mouse 1280x1024, Windows Accel	253
Diamond Stealth w/1MB (VRAM) 1280x1024 Windows Accel	200
Diamond Speedstar 24X w/ 1MB (VRAM) 1280x1024	134
Diamond Speedstar 24 w/1MB (DRAM) 1280x1024	155
Orchid 805 VESA Local w/1MB (DRAM) 1024x768	144
Orchid Prodesigner II w/1MB 1024x768, 256 Colors	118
Orchid Prodesigner II w/1MB 1024x768	118
Orchid Prodesigner IIS w/1MB (DRAM) 1024x768, Hi-Color	128
Orchid Fahrenheit 1280 w/1MB (VRAM) 1280x1024 Windows Accel	134
Genoa LV 8500 w/1MB	149

MONITORS

SAVGA Monitor 1024x768 .28dp	$236

SOCOS

1402 14" 1024x768 SVGA, Interlace, .28dp	245
1448 14" 1024x768 Non-Interlace, .28dp	280
1548 15" 1280x1024 Interlace, .28 dp	401

VIEWSONIC

1 14" 640x480 VGA .28dp	220
4E 14" 1024x768, .28dp	279
5E 14" 1024x768 Ultra Non-Int. .28dp	386
5+ 14" 1024x768 Ultra Non-Int. .28dp	479
6E 14" 1024x768 Non-Int, .28dp	320
6FS 15" 1024x768 Ultra Non-Int. .28dp, Flat	540
7 17" 1280x1024 Ultra Non-Int. .31dp, Flat	960
8 20" 1280x1024 Ultra Non-Int. .31dp, Flat	1490

SONY

1304S 14" 1024x768 .25dp Trinitron Tube	$561
1604 16" 1024x768 .25dp Trinitron Tube	973

HARD DISK

105MB TEAC IDE	$206
210MB TEAC IDE	324
42MB IBM IDE	125
42MB CONNER IDE	134
60MB CONNER IDE	180
120MB CONNER IDE	212
212MB CONNER IDE	296
213MB MAXTOR IDE	325
120MB QUANTUM ESDI	235
240MB QUANTUM ESDI	453
340MB IDE	438
500MB IDE	814

CD-ROM

SONY 535-0 SONY AT Bus CD-ROM w/Interface Kit	$272
SONY 535-CD SONY AT BUS CD-ROM w/Software & CD	372

TAPE BACK-UPS

COLORADO 120MB	$169
COLORADO 250MB	239

SCANNERS

HP ScanJet IIP w/1F	$850
HP ScanJet IIC w/1F	$LOW

MISCELLANEOUS

9600 Baud Fax Modem	$55
2400 Baud Modem	35
Panasonic KX-P1180 w/Cable	158
Panasonic KX-P1123 w/Cable	198
Panasonic KX-P1624 w/Cable	338
Panasonic KX-P1124i w/Cable	278
UPS (Uninterrupted Power Supply)	$LOW
ALL Kinds Mainboards	$LOW
Big Tower Case w/230W ps	86
Mid-Tower Case w/230W ps	69
Mini-Tower Case w/200W ps	50
IDE Controller VESA	65
Desktop Case w/200W ps	56

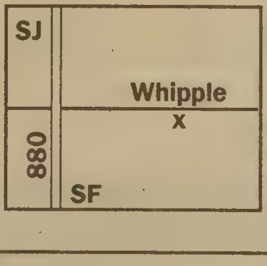
ScienTech R & D Inc.

"A Quality Computer Store"

2845 Whipple Road
Union City, CA 94587

(510) 429-8690
Fax: (510) 429-8693
Hours M-F 9-6
SAT 10-4

Leasing Available



continued from page 194

extensively detailed information sets. Those telecommuters working from home, from remote offices, or even from cellular phones or payphones on the road would be able to connect for much better, faster, cheaper access to vast quantities of data and information processing power from headquarters.

Enhanced Services: Residential subscribers may be able to obtain movies, pay-per-view, and other enhanced services from cable-TV companies—without the cable. They will also be able to operate computers, faxes, modems, full-motion video conferencing, and other enhanced service equipment over existing telephone lines.

Distance Education: The power of ISDN makes it possible to send two-way photos, sound, data, and other information between a teacher in a distant classroom and students in their homes, hospital rooms, or remote classrooms.

As with other technological advances, at first ISDN will be used mainly to enhance the service and reduce the cost of existing communications capabilities. But the equipment will be easily upgradable with inexpensive software/firmware changes. So when a critical mass of ISDN users is reached, a quantum leap in business practices, capabilities, and efficiency will take—reminiscent of the fax revolution, but heaps more far-reaching and pervasive. ■

PACBELL BREAKS NEW GROUND WITH REALTYLINK

RealtyLink is the first value-added service to be offered with ISDN capabilities. It is a real-time, multipurpose link between real estate agents, local real estate boards, lenders, inspectors, insurance agents, title insurance companies, escrow agents, attorneys, and the publications in which real estate is advertised.

Presently under development with the eight thousand member San Fernando Valley Board of Realty, California's largest, RealtyLink uses the new high-speed ISDN lines to electronically move information among all the parties to a typical real estate transaction.

When implemented, RealtyLink will be able to provide interested buyers with full-color photos (on screen and on paper) of all the properties they might like, and support this information with detailed maps of surrounding neighborhoods, community profiles, and copies of pertinent real estate documents. The ability of buyers, agents, and lenders to work simultaneously and jointly on electronic loan applications, and to transfer loan or escrow papers electronically, will speed the processing of transferring title to real estate, and eliminate the delays and expense of messenger service.

While some of this space-age information processing is presently available, it requires far more expensive and sophisticated equipment than under ISDN, which requires only a conventional telephone line in each connected office and an ordinary PC running the necessary software.

RealtyLink may be demonstrated as early as Pacific Bell's TEXPO, scheduled for May 5–7, 1993, in Anaheim.

Many other services are under consideration and development along the same lines: the telephone company cooperates with and supports the independent development of a capability by a third party, and the two entities then jointly market the finished product.

—Robert Moskowitz

Songtech International, Inc. Tel: 510-770-9051 Fax: 510-770-9060

POWERFUL PORTABLES!

KINGTECH

LCD PORTABLE

- 640 x 480 Supertwist LCD Screen w/Built-in Backlight
- Run VGA/EGA/CGA/MGA Mode
- 200 Watt 110/220 Auto Switch P/S
- Detachable 89-Key Keyboard
- Two 5.25" FDD, One 3.5" HDD
- Six Expansion Slots
- Weight: 16 lbs.
- Dimensions: 16" (W) x 9" (H) x 7" (D)

$795 VGA

CRT PORTABLE w/9" MONITOR . . .$345
SVGA COLOR PORTABLE . . . .$1250 **CASE ONLY**

GAS PLASMA PORTABLE

- High Resolution Gas Plasma Display
- 640x400 Pixel Graphics Display CGA/VGA
- 80 Characters x 25 lines
- 9.25" x 6"
- Detachable 84-Key Keyboard
- 110/220 VAC Auto Switching
- RS-232 Serial Port
- Parallel Printer Port
- External Monitor Port
- Soft carrying bag

$845 Paper White

$1295 VGA+

CASE ONLY

486-50 MHz EISA $1945

486-33 MHz VESA Local Bus $1650

486-50 MHz w/64K Cache $1695

486-33 MHz w/64K Cache $1495

386-40 MHz w/64K Cache $1150

386-33 MHz w/64K Cache $1095

486SX-25 MHz $1250

386-25SX $1075

SYSTEM CONFIGURATIONS:

- High Quality Motherboard
- 4 MB RAM On Board
- 1.2 & 1.4 MB Floppy Drive
- SVGA Monitor .28mm DP
- 120 MB Hard Drive
- 1 MB VGA Display Card
- Mini-Tower Case w/200 W PS
- Enhanced 101 Keyboard
- Mouse
- IDE I/O (2S/P/G) Controller

SYQUEST REMOVABLE HARD DISK (SCSI TYPE)

- 44 MB Model SQ555
- 88 MB Model SQ5110
- 44 MB Cartridge SQ400
- 88 MB Cartridge SQ800

External Available

COOLING FAN
FOR 486 CPU $29

MULTIMEDIA PACKAGES

• Sound Galaxy NX	$129
• Sound Galaxy NXPro	$159
• CD-ROM	$275

VIDEO CARDS & MONITORS

14" Mono	$95
Super VGA 1024x768 0.28	265
Oak VGA Card 16 Bit, 256K	35
Trident Super VGA 16 Bit, 1 MB	69
Nanao 16" 9070U	900
Impression 14" Non-Interlace	315
Impression 14" Super VGA	275

HARD DISK SPECIALS

HH 1050 44 MB MFM	$180
Conner 40 MB IDE	150
Conner 120 MB 19ms IDE	240
Conner 170 MB IDE	285
Conner 200 MB 19ms IDE	375
Conner 500 MB 16ms IDE	900
Maxtor 130 IDE	250
Maxtor 210 MB IDE	350
Maxtor 340 MB IDE	575

MATH CO & MEMORY

80387SX-25	$75
80387DX-25	75
80386DX-33	85
80387DX-40	95
256K SIMM Module	12
1 MBx9 SIMM Module	32
4 MBx9 SIMM Module	140
386, 486 CPU	IN STOCK
Cooling Fan For CPU	29

KEYBOARDS

Enhanced 101 Click (baby)	$29
MTEK 104 Click	38
MaxiSwitch 101	35
Keytronics 101	45
Omnikey 101/102	69
Omnikey Ultra 130	99

FLOPPY DRIVES

Teac 5¼" 1.2 MB FDD	$60
Teac 3½" 1.44 MB FDD	55
Teac 1.2 & 1.44 Combo Drive	135

COMPUTER CASES

Slide-In Case w/200 W PS	$69
Mini-Tower w/200 W PS	59
Med-Tower w/200 W PS	85
Full-Tower w/230 W PS	115
Big-Tower w/250 W PS	165

POWER SUPPLY

200 W AT	$39
230 W XT/AT	45
285 W AT	55
300W AT	65

CONTROLLER CARDS

Adaptec 152B SCSI	$245
Adaptec 1540A SCSI	85
MFM 1:1 16 Bit	45
IDE I/O (2S/P/G)	25
AT I/O (2S/P/G)	12
IDE Card	14

MOTHERBOARDS

486-50 MHz EISA	$895
486-33 MHz VESA	545
486-50 MHz ISA	595
486-33 MHz ISA	495
486-25SX	265
386-40 MHz ISA	185
386-33 MHz ISA	175
386-25SX	105

ACCESSORIES

Logitech Mouseman (Serial)	$65
Logitech Mouseman (Bus)	69
Logitech Trackman (Serial/PS2)	85
Impression Mouse	15
MS-DOS V5.0	45
Microsoft Windows V3.1	45

MODEM

Zortix 2400	$42
Zortix Fax Modem 2400/9600	75
Zortix 14400/14400 Fax/Modem	225
Kingtech Fax Modem 24/96	85

AND MUCH MORE . . .
CALL FOR BEST PRICES
DEALER INQUIRIES WELCOME

44061 So. Grimmer Blvd.
Fremont, CA 94538

PC/XT/AT are registered trademarks of International Business Machines, Inc. Prices subject to change w/o notice. Not responsible for typographic errors.

5 Years Labor & 1 Year Parts Warranty On All Systems

Name Brand Quality - Satisfaction Guaranteed

BCS★A THE COMPUTER STORE YOU CAN COUNT ON

INTEL 486DX - 33/50/66 MHZ 64K Cache 170 MB HD

INTEL 486-33/50/66DX2 CPU
4Mb Ram 70 NS (UPTO 64Mb)
1.2FD &1.44FD
64K CACHE (UP TO 256K CACHE)
170 MB IDE HARD DRIVE
SVGA MONITOR (1024X768 .28DP)
TRIDENT 8900 SVGA CARD W/1MB
2HD/2FD IDE CONTROLLER W/2S 1P 1G
101 ENCHANCED KEYBOARD

Complete System $1469/$1629/$1739

VESA LOCAL BUS 486-33/50/66 MHZ

✌ *This month's SPECIAL*

INTEL 486 DX/CPU
128k Cache (up to 256KB)
4MB RAM 70 ns (up to 32 MB)
Teac 1.2 Floppy Drive
Teac 1.44 Floppy Drive
170 MB IDE Hard Drive
Impression SVGA Monitor (1024x768 .28dp)
SVGA Card VLB 32 bit
IDE Controller VLB 32 bit

☞ Complete $1659/$1799/$1849

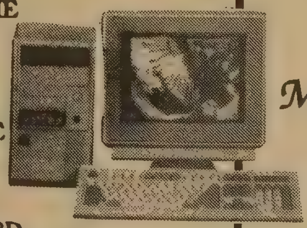
LOW PRICE !!!

MICROSOFT MOUSE	$55
FULL PAGE SCANNER B/W	$349
170 MB HARD DRIVE	$275
14.4 FAX AND MODEM	$259
CHAPLET 386/25SX NOTEBOOK	$1,249
TRACKBALL	$29
250 MB ARCHIVE/IRWIN TAPE BACKUP	$219
MULTIMEDIA UPGRADE KIT W/7 TITLES	$589
ETHERNET NE2000 NETWORK CARD	$85

CALL FOR

NICE Motherboard (Made in U.S.A)
VESA Standard Local Bus Motherboard
Panasonic Printers
Hewlett Packard Printers
Spinnaker Eight-in-One Program
DESQ View 386

386 - 40 MHZ SVGA 170 MB SYSTEM



386 - 40DX W/64K CACHE
4 MB RAM 70 NS
(UP TO 32 MB)
1.2 FLOPPY DRIVE
1.44 FLOPPY DRIVE
170 MB IDE HARD DRIVE
IDE I/O CONTROLLER
SVGA MONITOR
(1024X768 .28DP)
101 ENHANCED KEYBOARD
SVGA CARD W/1 MB
CASE W/230 PS

Complete System $1169

FREE!

Mouse with every system!

FREE!

Software installation with every system purchase

386SX-25MHz System 40MB HD Monitor

1MB Ram
40MB IDE Hard Drive
Mono Monitor w/Card
1.2FD or 1.44FD
IDE 1:1 2FD/2HD Controller
2 Serial, 1 Parallel, 1 Game Port
Quality Case / Power Supply
101 Enhanced Keyboard

Complete System $599

Video Options

MGP Card	$17
VGA Card 800x600/256K	$39
TRIDENT 8900 1024x768/1M	$75
TSENG LAB 1024x768/1M	$99
PARADISE 1024X768/1M	$99
ACUMOS ACCELERATOR W/1M	$99
DIAMOND STEALTH 24	$179
DIAMOND STEALTH W/1M	$179
ATI ULTRA PRO W/2M	$459
NCR GRAPHIC W/2M	$159
CALL FOR ITEMS NOT LISTED	

Motherboard w/CPU

486-33/50/66 DX	$470/639/759
486-33/50/66DX LOCAL BUS	$499/669/779
386-40 mhz/64k cache	$189
386-25SX no cache	$105

Monitors

14" Amber	$105
SVGA 1024x768 0.28DP	$285
SVGA 1024x768 0.28DPNI	$309
15" SAMSUNG SYNMASTER	$499
15" MAG15F 1280X1024 NI	$599
15" NEC3FGX 1024X768	$659
17" SAMSUNG 1280X1024	$899
17" NANAO 1280X1024 NI	$1,159
17" MAG 1280X1024 NI	$1.129
17" VIEWSONIC 1280X1024	$1,099

Hard Drive

40/80 MB HD	$169/215
120/200 MB HD	$269/369
340 MB HD	$579

Case w/Power Supply

Mini Tower Case W/230W PS	$59
Baby AT Case W/230W PS	$61
Middle Tower Case W/230W PS	$85
Big Tower Case W/230W PS	$109
Black Case W/PS	LOW

Miscellaneous

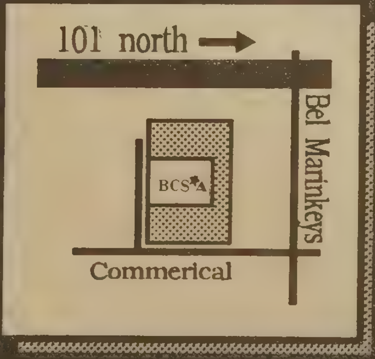
101KB	$24
101KB Maxiswitch	$39
101KB Keytronic	$49
Northgate Omni KB	$79
1.2 Floppy Drive	$58
1.44 Floppy Drive	$49
Three Button Mouse	$15
96/96/24 Fax/Modem	$69
2400 Modem	$35
Colorado Tape Backup 250 MB	$249
Heat Sink with Fan	$25

BCS★A Computers

8A Commercial Blvd Novato CA 94949
☎: (415)883-7392 Fax: (415)883-8104
Hours: M-F 10:00am to 6:00pm
Sat 11:00am to 4:00pm

* Dealer Inquries Welcome
* Volume Discount Available

Price subject to change without notice
Not responsible for typographical error
Trademarks are registered by the respective companies



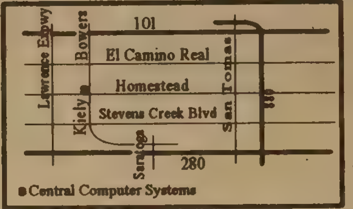
CENTRAL COMPUTER SYSTEMS, INC.

WIDE SELECTIONS AT LOW PRICES

Since 1986
TEL: (408) 241-0185
FAX: (408) 241-0390

820 Kiely Blvd.
(Between Homestead and Kaiser)
Santa Clara, CA 95051
Open 7 Days
Mon - Fri: 9 AM - 7:30 PM
Sat - Sun: 10:30 AM - 6 PM

30 Monitors On Display



- No surcharge for Visa, Discover & MasterCard
- Govt., universities and qualified firms purchase orders accepted on approved credit
- Financing plan available OAC
- Resaler & quantity pricing available
- Prices are subject to change without notice and to stock on hand
- Not responsible for typographical errors
- Call for items not listed

I BASIC SYSTEMS

IBM PS/ValuePoint

with : Desktop Case, 1.44MB FD,
IDE Controller, Keyboard, Mouse,
SVGA (1024x768,1MB), I/O ports

486-DX2-66	8MB, 212MB HD	2469
486-DX-33	8MB, 212MB HD	1825
	8MB, 120MB HD	1620
486-SX-25	8MB, 170MB HD	1450
	8MB, 80MB HD	1230
386-SLC-25	2MB, 80MB HD	950

ORCHID
(CAD STATION)

Super Board
VLB 486-33 , 256K cache
4 MB, TEAC 1.2 FD
Maxtor 130 MB HD, IDE Controller, 2S 1P
Mid Tower Case w. 220W
Mitsumi 101 Keyboard
Power II 4A monitor 1024x768 .28 NI
Fahrenheit VLB 1MB VGA
MS Serial Mouse
MS DOS 5.0 & WIN 3.1 2050

MICRONICS
COMPUTERS INC.

4 MB, TEAC 1.2 FD
IDE Controller, 2S 1P
Baby AT Case w/ 200W
Mitsumi 101 Keyboard
MS Serial Mouse
MS DOS 5.0 & Windows 3.1

486-50 EISA 256K cache	1795
486-50 ISA 256K cache	1535
486-33 EISA 256K cache	1525
486-33 ISA 256K cache	1185
386-33 Gemini 64K cache	855
386SX-20 Gemini	675

NICE
(MADE IN U.S.A).

4 MB, TEAC 1.2 MB FD
IDE Controller, 2S 1P
Baby AT Case w. 200W
Mitsumi 101 Keyboard
MS DOS 5.0 & WIN 3.1
MS Serial Mouse

486-50 EISA 256K cache	1495
486-50 ISA 256K cache	1315
486-33 ISA VLB 256K cache	1115

II HARDWARE

1 CD ROM

ATI Stereo FX w. speaker	115
CD Caddy / Sony CD Caddy	9.50/12
Gallant Sound Card / Labtec Speakers	95/25
Turtle Beach 16 bit MultiSound	515
AZTECH Labs Sound Galaxy NX Pro	
- (8 bit card+speaker+7 bundled s/w)	159
MEDIA VISION	
Fusion CD-16	495
Multimedia Upgrade Kit (w. Spectrum 16)	915
Pro Audio Spectrum 16	189
Midi Mate / w. Passport Design Trax	55/95
NEC	
CDR-74 CD ROM 280ms, 300KB/s, Ext	599
CDR-84 CD ROM 280ms, 300KB/s, Int.	545
Interface Kit for PC	89
Multimedia Upgrade Kit Int / Ext	915/995
SONY (no software)	
CDU 541-01 380ms Int (w. controller)	425(515)
CDU 7211 380ms Ext (w. controller)	555(635)
Sound Blaster Pro CD-ROM Upgrade Kit	
- w. 4 CD titles (no Sound Blaster Pro), Int	365
Multimedia Kit w. 6 CD titles, Int / Ext	525/549
Sound Blaster/ Sound Blaster Pro Basic	95/155
Sound Blaster Pro w. Midi kit	179
Sound Blaster Pro 16	279
Creative Lab Video Blaster / Midi Kit	335/49
TEXEL	
DM-3024 265ms, Int / w. Kit	399/469
DM-5024 265ms, Ext / w. Kit	495/565
TOSHIBA 3401 200ms 300KB/s Int/Ext	479/589
TRANTOR	
Mini SCSI Plus (Parallel to SCSI Adapter)	159
Music Box v.2 / T130 Interface Kit	29/79
CD SOFTWARE	
About COWS / Atlas Pack (World & US)	27/35
All American Sports/ Amanda Story	45
Amazing Universe / Atlas U.S. President	55/35
American Business Phone Book / Aloha !	59/39
Barney Bear Goes to School	29
Battle Chess Multimedia	49
Beauty & the Beast / Bible Library (OEM)	39/59
Birds of America / Britannica Family Choice	45/72
Business Backgrounds	39
Canyon Action	69
CD Source Book of American History	89
Chess Master 3000 /CD Power (shareware)	49/39
Compton's Family Encyclopedia	49/195
Compton's Interactive Encyclopedia (WIN)	255
Conan-the CIMMESIAN / Cautious Condor	39/45
DARWIN / Dr.T's Composer Quest	79/59
Dictionary of Living World	115
Educational Gameland (K- 6 grade)	37
Electronic Home Library/Elec. Library of Art	52/69
Essential Home & Business Collection	49
Grammy Awards / Golden Immortal	45/45
Great Cities / Great Wonders of the World	52/59
Greatest Books Collection / Guy Spy	45/42
Great Literature (2000 books)	79
Grolier's New Multimedia Encyclopedia	95/225
Hound of the Baskervilles	42
JAZZ of Mutimedia History	79
Jones in the Fast Lane	39
Just Fonts / Just Grandma & Me	48/45
Illustrated v2.0 / Multimedia v5.0 Encyc.	50/65
King Quest V / Loom / Mamals	39/39/39
Languages of the World	35
MacMillan Dictionary for Children (K-12 grade)	45
Mavis Beacon Teaches Typing	49
Microsoft CINEMANIA	59
Microsoft Multimedia Beethoven 9th symphony	59
Microsoft Multimedia Bookshelf	39/129
Microsoft Musical Instruments	59
Mixed-up Mother Goose	39/49
Monkey Island	39/49
Movie Directory Database Software Potpourri	59
Multimedia Animals Encyclopedia	65
Murder Makes Stranger Dead Fellows	49
Pacific Islands/Publish It (desktop publisher)	45/55
PC SIG Library vol.11 / PC SIG Games	109/37
Phoenix Shareware v2.0 / v3.0 (new)	45/62
Pilgram Quest	85
Playing w. Language (Eng/Fren/Ger/Jap/Span)	57
Pro Phone (National Phone Directory)	125
Prescription Drugs / Q & A v4.0	65/59
Reference Library / Sante (for Good Health)	45/62
Secret Weapons of the Luftwaffe	39
Shareware Database / Star Child	59/42
Sherlock Holmes I / II	42/49
Sleeping Beauty / Peter & the Wolf	39
Stellar 7 / Space Quest IV (Roger Wilgo)	39/49
Stories of Murder,Mystery,Magic,Terror	45
Street Atlas (DeLORME)	115
The Advanture of Willy Beamish	38
The Family Doctor / The USA Factbook	59/39
The World of US Manga	45
Time Table of History / The Animals	45/39
Ultima 1-6 / Ultimate Shareware	45/55
US History / US Atlas w. Auto Map	55/39
Voyage to the Planets / White Horse Child	55/42
Where in the World is Carmen Sandiego	65
Wing Commander w. Secret Mission 1&2	45/55
Wing Commander w. Ultima 6	45
World Vista / World Atlas	59/19.50

2 CASES

AT Case w. 200W Power	98
Baby AT w. 200W Power	79
Baby Tower w. 200W Power	85
Mid Tower w. 220W Power	105
Full Tower w. 250W Power	139
Full Tower w. 300W Power : Black / White	215/199
Slim Case w. 200W (2 drive bay)	95
WorkStation Case w. 60W (1 drive bay)	95
Hard Disk Drive External Casing	
- 2 half ht or 1 full ht for PC, 60W, 11lbs	119
- 3 half ht or 1 full & 1 half ht for PC, 60W	139
- 1 half ht for SCSI for Mac, 40W	99
- 2 half ht or 1 full ht for SCSI for Mac, 60W	139

3 CONTROLLERS

4 Floppies w. IDE controller for AT	45
COREL SCSI software	75
1 :1 MFM Controller 2HD & 2FD	59
ACCULOGIC	
sIDE-2 (2 IDE HD only)	26
sIDE-3 (2 FD & 2 IDE HD)	29
sIDE-4 (2 FD & 2 IDE HD, 2S & 1P)	49
ADAPTEC	
1522K SCSI w. Kit (3MB/s)	159
1542B SCSI w. Kit (10MB/s)	259
1542B Plus w. ASW 500	329
1640 SCSI w. Kit for MCA	335
1742A SCSI EISA w. Kit (2F & 2H)	459
ASW-1410 ASPI MS-DOS Manager v3.0	69
ASW-EZ SCSI for DOS & WIN	69
ASW-310 Sy-Tos Plus (Tape Backup s/w)	99
ASW-410 CD-ROM driver v2.1	69
ALWAY TECHNOLOGY	
AL 1000 Pro Corel Draw	189
IN 2000 High Performance 16 bit SCSI	179
IN 2000 Pro Corel Draw	219
AMI	
SCSI EISA cache (up to 16MB)	519
NCL America (w. on board BIOS)	
538B IDE controller 2HD & 2FD for AT	45
DTC	
2290 IDE EISA controller	139
3280AS SCSI controller	105
3290AS EISA SCSI host adapter	479
6282 1:1 ESDI	125
7287 1:1 RLL	73
FUTURE DOMAIN SCSI Controller	
TMC 1660 for AT (H only) controller only	139
TMC 1660 DNK for AT (H only) w. Kit	229
TMC 1680 for AT (4F& H,15MB/s) controller	169
TMC 1680 DNK for AT (4F & H) w. Kit	259
KOUWELL	
Floppy controller (XT)	18
4 Floppies controller (XT,AT)	33
IDE controller	27
IDE controller w. AT I/O (2S 1P 1G)	34
MICROSOLUTIONS	
CompatiCard IV 4-Floppies Controller (2 ext)	
- 360K/720K/1.2MB/1.44MB/2.88MB FD	115
MYLEX	
DCE 376 EISA SCSI w.4MB cache	725
ORCHID VESA LBus IDE (2HD,2FD)	69
PROMISE Drive Cache Controller	
DC 99M IDE 512K build in, upgrade 8MB	145
DC100M IDE I/O 512K build in,upgrade 8MB	179
DC 2031 IDE cache up to 16MB	145
DC 2032 IDE I/O cache up to 16MB	169
DC 2040 SCSI cache up to 16MB	235
DC 4030VL IDE VLB cache up to 16MB	259
DC 620 IDE EISA cache up to 16MB	295
SC 100 SCSI EISA cache up to 16MB	425
ULTRASTOR	
ULT 12F/24 ESDI 32K cache	165
ULT 12C/1 ESDI 1MB cache	455
ULT 22CA ESDI EISA 64K cache	495
ULT 15C IDE 8MB 256K cache	199
ULT 14F SCSI 32K cache ISA	229
ULT 24F SCSI EISA 64K cache	395
ULT 34F VL Bus SCSI-2 32K cache	295

4 DIGITIZERS

SummaSketch III 12x12, 4 or16 button	299
SummaSketch III 12x18, 4 or16 button	549

5 DRIVES

Frame for 3.5" Hard Drive and Floppy Drive	6
Removable Hard Drive Case for 3.5" HD	49

HARD DRIVES

CONNER	
CP-3000 40MB 25ms IDE 3.5", 1" ht	139
CP-30104 120MB 19ms IDE 3.5", 1" ht	219
CP30174E 170MB 18ms IDE 3.5", 1" ht	259
CP-30204 200MB 12ms IDE 256K 1" ht	325
CP-30254 250MB 14ms IDE 256K 1" ht	345
CP-3544 544MB 12ms IDE 1" ht	875
FUJITSU (5 years warranty by manufacturer)	
2624FA 525MB 12ms SCSI-1&2	869
2266FA 1.2GB 15ms SCSI 5.25" full	1265
M2652S 2.0GB 11ms SCSI 5.25" full	2475
MAXTOR	
MXT-7120A 130MB 15ms IDE 3.5"	219
MXT-7213A 213MB 15ms IDE 3.5", 1" ht	325
LXT 340A 340MB 13ms IDE 3.5"	585
LXT 535A 535MB 13ms IDE 3.5"	899
LXT 7120S 130MB 15ms SCSI	279
LXT 7213S 200MB 15ms SCSI 3.5"	365
LXT 340S 340MB 13ms SCSI	589
LXT 535S 535 MB 13ms SCSI	925
PO-12 1.2GB 13ms SCSI	1225
PI-17S 1.7GB 13ms SCSI	1495
Optical Drives : Rewritable 1 GB 35ms SCSI	
- Ext Tahiti II / 1 GB Cartridge Glass	2795/199
MICRO SOLUTIONS (External Hard Drive)	
40MB / 100MB (use printer port)	345/455
PLUS DEVELOPMENT (Hard Card)	
Hardcard II XL 50 / XL 105 , 9ms	249/399
QUANTUM	
EIS 127AT 127MB 17ms IDE 32K cache	249
EIS 170AT 170MB 17ms IDE	279
LPS-240AT 244MB 16ms IDE 256K cahce	365
LPS-240S 244MB 16ms SCSI 256K cache	435
PRO-425S 425MB 14ms SCSI 64K cache	895
PRO-1225S 1.2GB 9ms SCSI 1.2M cache	1545
SEAGATE	
ST-351A 40MB 28ms IDE	139
SYSGEN (Extenal Hard Drive, use printer port)	
42 MB / 84MB / 124MB	309/395/489
TEAC	
SD 3105 105MB 19ms IDE 1"ht	199

FLOPPY DRIVES

SYQUEST	
SQ44i 44MB Int	289
SQ44e 44MB Ext w. controll & cartridge	499
SQ400 44MB / SQ800 88MB cartridge	75/99
SYSGEN (External Floppy Drive)	
Portable EasyFloppy 3.5"/5.25" for laptop & PC	
- 1.2, 1.44, 360K, 720K (printer port)	159
Floptical Drive 21MB w. controller	299
TEAC (Floppy Drive)	
1.2MB 5.25" / 1.44MB 3.5" w. frame	57/55
2.8MB 3.5" w. frame	95
Dual Floppy Drive 1.2MB & 1.44MB	149

6 I/O CARDS

EVEREX	
Magic AT I/O Plus w.16550UART, (1S 1P)	62
Second serial port for AT I/O cards	25
KOUWELL	
2S 1P 1G w.NS16550AFN chipset (XT, AT)	55
4 Serial ports card / AT I/O (2S 2P)	79/33
AT I/O (2S 1P) / AT I/O (2S 1P 1G)	27/27
AT I/O w. IDE (2S 1P 1G)	34
Printer card / Serial card (XT, AT)	15/15
QUICKPATH	
13 port I/O w/4-16550UARTS (2 IDE,4F,4S,2P,1G)	115
STB 4-COM	
4 serial, 16 bit, w.16554, support	
- COM 1-8, IRQ 2,3,4,5,10,11,12,15	109

7 KEYBOARDS

FOCUS	
FK2001 101 click	42
FK8000 111 w. calculator	45
FK5001 130 keys w. cursor accelerator	60
FK9000 129 keys Programmable	72
NORTHGATE OMNI	
101S / 101NI / 102	55/69/69
Ultra T or F	95
SIIG (click)	
Suntouch Jr. 84-key mini keyboard	49
Suntouch 101	53
OTHERS	
BTC 84-key mini keyboard	39
KEYTRONIC 101	39
MAXI 101 / MITSUMI 101	35/35
Monterey 101	30

8 MATH CO-PRO, CPU

CYRIX	
83S87 - SX16 / SX20 / SX25	69
83D87 - 25/33/40	85/85/99
Cx486 DLC	175
INTEL	
INTEL OverDrive Processor 486 SX16 / 20	395
- 486 SX25 / DX25	495
- 486 SX33 / DX33	659
INTEL 387 Math Co Processor	89
Cooling Fan (heat sink)	25.50
INTEL CPU 386 DX25 / 33	85
AMD CPU 386 DX40	99
INTEL CPU 486 DX33 / 50	360/520
INTEL CPU 486 DX2-50 / 66	460/620

9 MEMORY CARDS

ACCULOGIC	
RAMpAT! up to 16MB(SIMM),16 bit, AT	99
SIMM-ply Ram 8/16 bit, 8MB max, XT, AT	145
SIMM-ply Ram 16 bit, 8MB max, PS/2-50,60	169
SIMM-ply Ram 32 bit, 8MB max, PS/2-70,80	179
EVEREX (0K on board)	
Ram 10000 up to 10MB, EMS, AT	125
INTEL	
Above Board w. 512K (special)	199

10 MEMORY CHIPS

DRAM	
1 MB x 1 - 80 ns	3.99
256K - 80 ns / 64K - 100ns	1.39
256K x 4 - 80 ns / 64K x 4 - 80 ns	4.29/1.65
SIMM	
16 MB x 9 - 70 ns	650
4 MB x 9 - 60 / 70 / 80 ns	160/150/140

CENTRAL
COMPUTER SYSTEMS, INC.
WIDE SELECTIONS AT LOW PRICES

CENTRAL COMPUTER SYSTEMS, INC.
Wide Selections At Low Prices

820 Kiely Blvd. Santa Clara, CA 95051
Tel.: (408) 241-0185 FAX: (408) 241-0390

SEE MORE ON THE NEXT PAGE

1 MB x 9 - 60 / 70 / 80 ns	36/34/32
256K x 9 - 70 ns	11
1 MB x 36 - 60 / 70 ns	160/150
4 MB x 36 - 70 ns	570
SIMM Mac : 1 MB x 8 - 80 ns	8
SIMM Mac : 4 MB x 8 - 70 / 80 ns	125/115
IPP	
1 MB x 9 - 70 ns (3 chips)	34
INGSTON MEMORY for	
Apple, AST, AT&T, Compaq,IBM,Nec,Sun.	call
ASER PRINTER MEMORY UPGRADE	
Jet Ram (3rd Party):	
EPSON - EPL 6000 2MB/ 4MB	129/199
HP Deskjet 500/500C 256K	69
HP Laser Jet IIP+/ III/ IIIP/ IIID	
- 1MB/ 2MB/ 3MB/ 4MB	75/115/155/195
HP Laser Jet II/ IID 1MB/ 2MB/ 4MB	95/135/205
PANASONIC -	
KX-P4410/ 4430 1MB/ 2MB/ 4MB	105/139/215
KX-P4420/ 4450i 1MB/ 2MB/ 4MB	99/139/209
KX-P4450 1MB	139
KX-P4455 2MB	159
QMS -	
P-S 410 1MB/ 2MB/ 4MB	99/139/209
P-S 815/ 825 2MB/ 4MB	159/229
TEXAS INSTRUMENTS	
TI Micro Laser 1MB	69
PACIFIC DATA:	
Pacific 4 Memory for HP IIP+/IIIP/III/IIID	
- 1MB/ 2MB/ 4MB	89/129/209
1-2-4 Plus for HP II/ IID	
- 1MB/ 2MB/ 4MB	115/155/235
Pacific 4 SIMM for HP 4/ IIISi/ XL300	
- 4MB/ 8MB	179/329
Pacific T Memory for Epson 6000	
- 2MB/ 4MB	209/299

11 MODEMS & FAX

ASAP TF-333 Phone & Fax Auto Switching	89
National Semi TyIN 2000 Answer/ Fax/Modem	195
dtech Micro Systems (DOS & WIN)	
Comm-panion Pocket Fax Modem 96/24	129
Data Fax 9624Vi, MNP5	99
SmartConnect 9624i Fax Modem	75
-Tech	
Bullet Modem 9696 MNP5 Int/Ext	225/255
Ufomate Pocket Fax Modem (w. Win/DOS s/w)	
P1496MX / P9696MX (special)	305/259
VEREX	
Evercom 9600 v.42, MNP5 Int	295
Evercom 2400 Baud MNP5 Ext	139
RECOM	
Fax 96 w. 1 Liner & Far Fetch Fax	135
Fax 96 & modem for DOS	119
Fax 96 w. 1L&FFF & modem for DOS	169
AYES	
Optima 96 v.42, MNP 5 Ext	369
Optima 96 Ext + Fax 96	395
Optima 144 Ext + Fax 144	495
Pocket edition 2400 w. Smartcom EZ	129
Smart Modem 2400 Ext	275
Ultra 96 v.42, MNP5 Ext	579
Ultra 144 v.32,v.42, MNP5 Ext	655
V-series SmartModem 9600 v.42, MNP5 Ext	499
Smart Com Exec/ WIN/Smart Com III	75/109/119
ITEL	
4400 EX v.32,v.42,MNP5 Ext	470
Faxability Plus/OCR for WIN trade-up	115
SatisFaxtion Modem (w. FAXability s/w)	
100 Int send96 rec.48, 2400 modem	95
200 Int 96/24 v.42, MNP5	295
300 Int 96/144 v.42 (no scan port)	315
400 Int 96/144 v.42, MNP5	395
400e Ext 4K data buffer	435
ACRONIX	
Pocket Fax modem MacLite 144/PC	
w. WinFax s/w	355
RACTICAL PERIPHERALS	
PM14400FX96 Int/ PM14400FX96SA Ext	369/409
S ROBOTICS	
Courier 144 v.32,v.42, MNP5 Int	535
Courier 144 v.32,v.42, MNP5 Ext	555
Courier HST-DS 144 v.32,v.42, MNP5 Ext.	775
Sportster 2400 w. Sierra Game Int/Ext	99/109
Sportster 96 Modem MNP5 Int/Ext.	259/279
Sportster 9696 FAX MNP5 Int/Ext	289/309
Sportster 14.4 MNP5 Int/Ext.	299/319
Sportster 96/14.4 FAX MNP5 Int/Ext	309/329
hared Access Modem Sharing Kit	675
OLTRIX	
400 baud modem w. MNP5 Int	49
6/24 send & rec. fax/modem w. MNP5 Int.	75
6/24 fax/modem v.42, MNP5 Int	105
4.4 fax /14.4 modem Int	229
ocket send & rec. fax/modem Ext.	139
OOM	
end 96 Rec. 48 modem 2400 Int / Ext	85/99
C9624V Int / FX9624V Ext	135/155
6/96 fax modem MNP5 Int / Ext	245/265
44/144 fax modem Int / Ext	265/295
/-XEL	
6.8 modem 14.4Fax w. WINs/w Int/Ext.	345/349

12 MONITORS

" VGA Mono paper white 640 x 480	135
IG	
" Mono paper white	115
STANDARD TECHNOLOGIES	
400-M VGA 1024x768 Paper white, 110/220v	115
EMC	
EM 1412 14" Mono amber, 90-260v	95
EM 1428 14" 1024x768 .28, 90-260v	279
EM 1430 14" 1024x768 .28 NI, 90-260v	315
EM 1439 14" 1024x768 .39	235
IBM PS/Value Point	
6312 14" 1024x768 .28, NI	399
6314 14" .28, NI w. Digital Pro Control	515
6319 15" Flat 1024x768 .28, NI	639
MAG (Auto Switch Power Supply)	
PMV1448 14" 1024x768 .28, NI	355
MX14S 14" 1280x1024 .26, Sony Trinitron	525
MX15F 15" Flat 1280x1024 .28, NI, MacII	585
MX17F 17" Flat 1280x1024 .26, NI, MacII	1075
VGA to Mac Adapter	25
MITSUBISHI (w/ base)	
HL6955SETK 20" 1280x1024 .31, NI	1745
Diamond Pro(TFS 6705) 17" 1280x1024 .26,	
- NI,Trinitron, MacII, 100-240v	1095
BNC Cable	39
NANAO (100-240v)	
F340IW 15" 1024x768 .28	735
T560i 17" 1280x1024 .25, NI, MacII	1645
F550i 17" 1280x1024 .28, NI, Mac	1145
T660i 20" 1280x1024 .31, NI, Trin. , MacII	2595
F750i 21" 1280x1024 .31, NI, MacII	2195
NEC (120v)	
3FGX 15" 1024x768 .28, Mac	625
4FG 15" Flat 1024x768 .28, NI, Mac	749
5FG 17" Flat 1280x1024 .28, NI, Mac	1345
6FG 21" Flat 1280x1024 .28, Mac	2395
NEC Monitor Lens (Anti-reflection, Anti-static)	
- for 4FG / 5FG / 6FG	74/115/185
PANASONIC (90-140v)	
C1381i 14" SVGA 1024x768 .28, Int, MacII	325
C1395 14" 1024x768 .28, NI, MacII	435
C1991 20" 1024x768 .31, NI, MacII	1485
POWER II	
3E 14" SVGA 1024x768 .28, Int, 90-264v	285
4A 14" Multisync 1024x768 .28, NI, 100-240v	319
SAMSUNG	
MA2565 12" mono amber	75
ML4571 14" VGA mono 640x480, 120v	125
CVM4967 14" 1024x768 .28, 108-132v	305
CSD5577 15" Flat 1024x768 .28, NI	459/499
CSF7487 17" 1280x1024 .26, NI, 90/264v	995
SEIKO (90-132v)	
CM1450 14" 1024x768 .25, NI	425
CM2050 20" 1024x768 .31, NI, Mac	1545
SONY	
1304S 14" 1024x768 .25, NI, 120v	565
1604S 17" 1024x768 .25, NI, 100-240v	995
2036S 20" 1280x1024 .30, NI, MacII	2095
VIEWSONIC	
ViewSonic 4e 14" 1024x768 .28, Int,110/220v	315
ViewSonic 5+ 14" 1024x768 .25, NI, MacII	515
ViewSonic 5e 14" 1024x768 .28, NI, MacII	415
ViewSonic 6e 14" 1024x768 .28, NI	355
ViewSonic 6FS 15" 1024x768 .28, NI,90/264v	575
ViewSonic 7 17" 1280x1024 .28, NI, MacII	995
ViewSonic 8 20" 1280x1024 .31, NI, MacII	1595

13 MOTHERBOARDS

386-33/386-40 (w. 64K cache w/o CPU)	125/129
- upgrade to 256K cache	50
486-33 w. 64K w/o CPU	135
AMI	
Mark V 386-33 w. 64K / 256K cache	395/465
Super Voyager 486-33 64K / 256K	725/795
Super Voyager 486-50 64K / 256K	975/1045
Enterprise II 486-33/50 EISA w. 128K	995/1295
AMI Diag	95
GENOA	
Express 486-50 w. 256K for Local Bus (w/o CPU)	
- Color Bahn Multimedia VGA & Turbo	475
MICRONICS	
386SX-20 Phoenix BIOS (32MB max)	175
386SX-25	235
386-33 64K cache Gemini (32MB max)	355
486-33 256K cache ISA	685
486-33 256K cache EISA E2	1025
486-50 256K cache ISA	1035
486-50 256K cache EISA E2	1295
486-33 Local Bus w. 256K cache	899
486-DX2-50 Local Bus w. 256K cache	1065
486-DX2-66 Local Bus w. 256K cache	1245
MiniBoard 486-33 256K cache ISA	675
MiniBoard 486-50 256K cache ISA	995
MiniBoard 486-DX2-50 256K ISA	885
MiniBoard 486-DX2-66 256K ISA	1065
MiniBoard 486-DX50 256K EISA E3	1195
MiniBoard 486-DX2-66 256K EISA E3	1285
4MB Piggy Back (up to 8MB)	299
16MB Memory Card	150
NICE	
486-33 256K cache (w/o CPU)	245
486-33 256K ISA VLB (w/o CPU)	255
486-50 256K cache (w/o CPU)	295
486-50 256K Mini EISA VLB (w/o CPU)	365
486-50 256K cache EISA (w/o CPU)	475
486-DX50 256K cache EISA VLB (w/o CPU)	525
ORCHID	
Superboard 486 (VLB for VGA & controller)	
- DX33/DX50/DX2-66 256K(no CPU)	375/395/375
QUICK-PATH	
486-50 w. 64K cache, 15ns ISA (w/o CPU)	345
- upgrade to 256K cache	80
486-50 w. 256K cache, 15ns EISA (no CPU)	545
UMC	
286-12	69

14 MOUSE

JOYSTICK : Warrior 5	14.50
APPOINT (special)	
MousePen Pro / Thumbelina (portable)	49
GENIUS	
GM-F302 mouse (3 button)	29
IMSI	
PC Stylus (Mouse & Trackball for CAD)	39
KENSINGTON	
Expert mouse serial,trackball/ Bus mouse	99/115
LOGITECH	
Cordless /Dexxa Serial /First Serial	89/27/37
Fotoman Digital Camera for PC & PS/2	485
Mouseman Bus	64
Scanman 256 / w. OCR software	249/299
Scanman color - 16.8 million colors	565
Trackman Portable / Trackman Combo	99/79
MICROSOFT	
Ball Point Mouse (portable)	119
Bus Mouse 400PPI / Serial Mouse 400PPI	85/59
Serial Mouse 400PPI w. PS/2 port	79
Serial Mouse 400PPI w. 9 to 25 pin adapter	79
MOUSE SYSTEMS	
Omni Mouse (2 button)	25
PC Mouse III Serial (optical) / Mouse Pad	59/22
PC Trackball II	55
Pen Mate / Page Brush - color scanner	165/469
Serial Bus Card (9 IRQs)	29
The New Mouse 400CPI (3 button)	55
The White Mouse w. Power Panel	45

15 NETWORK

MAILMAN 2.0 (10 user for Novell NetWare)	350
SilverNet Software / Starter Kit	79/425
3COM	
3C503 8 bit coax/ 3C503-TP ethernet	179/199
3C503-16 coax/ 3C503-16-TP Etherlink II	169/179
3C507 16 bit coax ethernet/ 5 pack	279/1250
3C507-TP 16 bit TP ethernet/ 5 pack	299/1450
3C509 Etherlink III coax/ 5 pack	139/625
3C509 Etherlink III TP/ 5 pack	145/650
3C523B Etherlink/ MC for PS/2/ 5 pack	289/1210
3C523B-TP TP for PS/2/ 5 pack	319/1435
3C621 Link Builder 10 BT (12 port)	745
3C623 Single port BNC Module	125
ARTISOFT (Lantastic)	
AE-2 Ethernet starter Kit v4.1,10Mbps	459
AE-2 Ethernet starter Kit, WIN (special)	510(479)
AE-2 Ethernet adapter	199
AE-2 MCA Ethernet adapter	275
AE-3 Ethernet starter kitv4.1,10Mbps.	535
AE-3 Ethernet starter kit v4.1, WIN	585
AE-3 Ethernet adapter	235
10BaseT starter kit v4.1	595
2Mbps starter kit v4.1	355
2Mbps adapter	145
AE-1/T 8bit 10Base-T adapter	135
AE-2/T 16bit 10Base-T adapter	210
64K RAM upgrade for AE-2, AE-3 adapter	45
AI software (individual node) v4.1	69
Articom (LAN modem sharing software)	239
Artiscribe System s/w / hardware + s/w	299/345
Central Station Connectivity Processor	399
Dial Up Connection	69
Ethernet software Kit (NOS) v4.1	79
Lantastic Z (2 stations) v4.1	89
Lantastic for Netware (Network O/S)	139
Lantastic for WIN software Kit	165
Lantastic for Mac software Kit	339
Lantastic for Mac hardware & s/w Kit	549
Lantastic Print Server Station Ware	69
Netware Print Server Station Ware	69
Network Eye (Remote Control Access)	129
Peer-Hub 10Base-T concentrator	270
Peer-Hub AUI Interface Kit	270
Remote Boot ROM for AE-2, AE-3 adapter	45
Sounding Board adapter Kit	72
CASTELLE	
FaxPress (Network Fax Server)	
- Novell 1 line Ethernet coax	2595
- Novell 2 lines Token Ring 16/4Mbps	3225
JetPress (Network Print Server)	
- for HP II,IID,III,IIID, coax / TP	429
LANPress (Print Server) connects up to 4 printers	
- Ethernet Thick/Thin coax (1P 3S)	475
- Ethernet Thick/Thin coax (2P 2S)	625
- Ethernet 10BaseT (1P 3S)	475
- Ethernet 10BaseT (2S 2P)	635
CC:MAIL	
cc:Mail DOS v4.0 / WIN platform	199/339
cc:Mail 10-user / 25-user pack	239/579
cc:Mail Gateway v3.21/ FAX v1.2	879/1350
COMPULAN	
Ethernet	
- 8 bit E100 coax (special)	69
- 8 bit ET500 TP ethernet	85
- 16 bit E200 coax	95
- 16 bit E210 coax & TP, BUS master	159
- 16 bit E300 coax dual-port shared mem.	129
- 16 bit ET600 TP ethernet	105
- 16 bit E650 coax & TP, surface mount	125
- 16 bit E200/2 coax for PS/2 MCA	145
- 16 bit E800/2 coax for PS/2 MCA	155
- 32 bit E911 Bus Master for EISA	315
- 32 bit E950 coax & TP, EISA Bus	259
- Boot Prom (for E100/ E200/ E300/ E600)	25
- Hub 8 port TP +1BNC +1 cascading	285
- 12 port TP +1BNC +1 AUI +1 cascading	495
- Pocket adapter for coax / TP ethernet	179
Arcnet	
- 16 bit for XT/AT Star Topology	69
- 16 bit for XT/AT Bus / TP	79/79
- 16 bit "4-in-1" Turbo Star & Bus	
(w. NCR 90C98A ASIC)	99
- 4-port Arcnet Passive Hub	19
- 8-port Coax Stackable Active Hub	159
- Pocket adapter for Arcnet	135
Token ring	
- T1000 16/4Mbps	349
- T1000/2 16/4 Mbps for MCA	379
- MAU 8-port Type 1 cable, DB9 shielded TP	329
- MAU 8-port Type 3 cable, RJ45 unshielded TP	279
FARALLON	
PN381 PhoneNet w.Timbuktu for WIN	259
GATEWAY COMMUNICATION	
G/Ethernet 16 coax / 16 TP / 32 bit	129/149/480
XIRCOM	
PE2-10B2 Pocket Adapter Ethernet coax	315
PE2-10BT Pocket Adapter Ethernet 10BaseT	325
PT2-16B3 Pocket Token Ring 16/4Mbps	615
INTEL	
EtherExpress FlashC LAN Adapter (combo)	165
EtherExpress 16 coax / 16 TP	135/145
EtherExpress 16 coax 5 pack	545
EtherExpress 16 MCA / 16 MCA TP	179/189
EtherExpress 32 EISA	559
EtherExpress ISA Hub Adapter 12 port	565
EtherExpress EISA Hub Adapter	645
LAN Protect 1.5 (virus protection)	685
LAN Sight 3.0 Netware Ultility/ Monitor	299
LANSpool s/w 386 NLM v3.5	425
NetPort II Thin /Thick Ethernet	519
NetPort II 10BaseT / Token Ring	529/759
NetSatisfaxtion V.2 (s/w for NOVELL)	955
RJ45 Harmonica	55
TokenExpress 16/4 for ISA / EISA	535/685
TokenExpress 16/4 for MCA	535
NOVELL	
8 bit NE1000 coax ethernet	109
16 bit NE2000 coax ethernet / 5 pack	145/625
16 bit NE2000TP TP ethernet / 5 pack	149/650
32 bit NE3200 coax (EISA)	675
NTR 2000 Token Ring	435
Eagle NE10T-Hub 4 Port Concentrator	225
EPROM for NE2000	35
EXOS NE10T-Hub, 8 Port, 8 TP + 1 coax	335
Netware Lite 1.1 + DR DOS 6.0	69
Netware 2.2	
- 5-user / 10-user	489/1089
- 50-user / 100-user	1995/2955
Netware 3.11	
- 5-user / 10-user	599/1345
- 20-user / 50-user	1885/2775
- 100-user / 250-user	3859/6885
SMC (WESTERN DIGITAL)	
Ethercard Plus Elite 8 bit coax	115
Ethernet Plus Elite 16 coax / 16 TP	139/145
Ethernet Plus Elite 6 pack 16 coax/16 TP	725/750
SMC 3016 16bit coax / 16bit TP	145/149
Ethercard Elite 16 combo (coax/10BaseT)	175
Ethercard Plus/ A for PS/2 (16 bit MC)	219
Ethernet Elite 32 bit coax / TP	650/660
Netware Boot ROM for Ethernet	34
Concentrator 8 Port (10 Base T ethernet)	339
CABLES & ACCESSORIES	
Twisted pair cable, TP 4-pair, PVC	
- 1000' / 500' / 200'	89/55/35
10 BASE-T Twisted pair cable, 1000'	165
RG58 cable, 1000'	109
Belden 8259, RG58, 1000'	165
Transceiver AUI ---> TP (coax to RJ45)	69
Transceiver AUI ---> BNC (thick to thin coax)	69

16 POWER SUPPLIES

AMERICAN POWER CONVERSION (UPS)	
APC-400 Smart-UPS (286, 386 WS)	309
APC-600 Smart-UPS (386, 486 FS)	399
APC-900 Smart-UPS (386, 486, FS & WS)	639
APC-1250 Smart-UPS (multiple FS & WS)	799
APC-450 Back-UPS 286, ps/2, 386	235
APC-600 Back-UPS 286, 386 FS	285
APC-800 Back-UPS 800RT, 2-4ms, 15 mins	565
APC-750 On-Line UPS (286, 386, 486 FS)	1365
APC-1500 On-Line UPS (multiple servers)	2499
APC PowerChute for Novell / for UNIX	79
APC UPS Monitoring Board for NetWare	75
Power Doctor (DOS) I/F Kit for Smart-UPS	79
PC POWER COOLING	
Standard 220 desktop / full tower	95
Silencer 270 slim (for baby & mid tower)	169
- AT desktop / full tower	179
Turbo-Cool 300 slim	165
- desktop / full tower	185
Turbo-Cool 450 desktop / full tower	345
InnerSource 2210 UPS for full tower, Int, 95-132v,	
- 220W DC, 100W AC,=550VA Ext UPS	355
Novell Netware Interface	
- for InnerSource 2210 UPS	55
TRIPP LITE	
BC 500 Lan (UPS, 350W)	215

CENTRAL
COMPUTER SYSTEMS, INC.
WIDE SELECTIONS AT LOW PRICES

CENTRAL COMPUTER SYSTEMS, Inc.
Wide Selections At Low Prices

820 Kiely Blvd. Santa Clara, CA 95051
Tel.: (408) 241-0185 FAX: (408) 241-0390

BC 900 Lan (UPS, 650W)	365
Omni 450 Lan (UPS 325W + Line Regulation)	295
Omni 600 Lan (UPS 425W + Line Regulation)	385
Omni 900 Lan (UPS 650W + Line Regulation)	545

OTHERS

200W for XT/ UL	48
200W / 230W for Baby AT	45
200W / 230W for Mid Tower	55
230W for AT	48
230W / 300W for FullTower	59/89
550W / 1200W for UPS	279/659

17 PRINTERS

CANON

BJ-10ex Bubble jet 360 dpi, 37K buffer	
- Black / White	289/299
- Auto Sheet Feeder	79
- Other Accesories same as BJ-20	
BJ-20 w. Auto Sheet Feeder	385
- Bag / Battery	39/45
- Print Head Cartridge	22

CITIZEN

GSX 200 (9 pin) / GSX 130 (24 pin)	165/205
GSX 140 Plus (24 pin)	269
- Color Option for above printers	45
- Auto Sheet Feeder for GSX 140	109
GSX 145 (24 pin, 132 column)	355
- Color Option for GSX 145	65
GSX 230 Fonts & quiet	249
GSX 240 Scalable Fonts & quiet	295
PN48 notebook, 1ppm, 2lb, battery, case	325

MICROTEK

TrueLaser MTP-306 6ppm, 2MB, 35 fonts	1275

HP (HEWLETT PACKARD LaserJet w. toner)

Desk Jet 500 / 500C / 550C	395/519/719
Laser Jet HP IIP+ / HP4 / HP4M	775/1395/1975
Laser Jet HP IIIP / IIID / IIISi	965/2295/3395
HP Accessories:	
- Envelope Tray(15 envelopes) for III	69
- Envelope Tray for IIP, IIIP	79
- Envelope Feeder for IIID (special)	245
- Legal Tray for HP II, III	69
- Lower Cassette w. letter tray IIP,IIIP	149
- Toner for HP II, III	79
- Toner for HP IIP, IIP+, IIIP	66

LASER MASTER

Win Printer 800 (Postscript)	1125
Win Printer XL600 11x17, 600x660PPI	3325
WinJet 800 Postscript for HP II,IID,III,IIID	495
WinJet 1200 Postscript for HP 4	799

PACIFIC DATA PRODUCTS

ProTracer Inkjet, A to C size output, 360dpi,	
- i960RISC processor, 512K, 45dBA	11
- Postscript emulation card	375
- HP-GL emulation Card	325
- Sheet feeder I / II	115/105
- Ink cartridges	19.50

PANASONIC

1123 /1124i / 1624	199/285/349
- Auto sheet feeder for 1124 KX-P36	120
2123 24 pin, 43.5dBA, color capability	239
2124i 24 pin, 43.5dBA, color capability	319
2624 24 pin, quiet printer, 46.5 dBA	375
2180 9 pin, 45 dBA, color capability	159
Color upgrade Kit KX-PCK11	49
Single bin cut sheet feeder KX-PT10	95
32K Buffer dot matrix printers KX-P43	65
Serial interface card PS-13	75
4410 Laser, 512K, 5ppm	625
- LaserBoard 1MB (3rd party)	105
- Corona KX-PCR3	45
- Developer KX-PDP4	105
- Drum KX-PDM4	89
- Extra cassette KX-PKC2	45
- Fuser unit KX-PFS5	105
- Optional second cassette KX-P495	135
- Toner KX-P453	35
- Fonts Card KX-P47x (for Lasers)	95
4430 Laser, 1 MB, 5ppm	885
- Accessories same as 4410	
4420 Accessories	
- Developer KX-PDP2	95
- Drum KX-PDM2	99
- Envelope Tray KX-P431	59
- Legal Tray KX-P425	45
- Ozone Filter KX-PFT2	26
- Toner KX-P451	39
4450 Accessories same as 4450i	
4450i Laser, 11ppm	1095
- Developer KX-PDP1	95
- Drum KX-PDM1	145
- Envelope Tray KX-P430	59
- Legal Tray KX-P420	45
- Ozone Filter KX-PFT1	29
- Toner KX-P450	35
4455 Postscript, 11ppm	1695
- others same as 4450i	

QMS (Adobe Postscript)

QMS-PS 410 4ppm, 2MB, 45 Fonts	1375
- Envelope / Legal / Letter Tray	69/69/69
- Lower Cassette w. Letter Tray	160
- Toner	95

SEIKO

Smart Label Printer Plus (IBM/ APPLE)	149
Box of Label (2 rolls per box)	10.95

TEXAS INSTRUMENTS

MicroLaser Plus PS17 / PS35 9ppm	1155/1295
- Apple Talk Kit	99

Laser Printer Accessories:

COMPUTER PERIPHERAL

Jet Page (for HP II)	195

GENESIS

JetTray 250E, holds 250 #10 envelopes	469

IQ ENGINEERING

True Type Master Library	29
Super Cart. 2 for HP II, IID, IIP, IIP+, III, IIID	249
Super Cartridge 2 & 2LC	269
Super Cart. 3 Pro+ for HP III,IIID,IIIP,IIISi	249
Super Cart. 3 Creative Collection for III family	249
Desk Jet 500 / Desk Jet Plus Professional	99

PACIFIC DATA

25 in One! (for Deskjet 500)	99
25 in One! III	
- for HP II, IID, IIP, IIP+, III, Microtek	245
Complete Font Library for HP III, IIID, IIIP	255
Font Bank for all HP Laserjet (New)	
- stores soft fonts, 0.75MB / 1.5MB	205/269
Headlines Cartridge for HP II, IID, IIP	185
Paicfic Connect XI	
- (connect up to 10 PC and/or Mac to a printer)	
- For HP II, IID, III, IIID :	
-- 5 port 256K / 1MB	319/389
-- 10 port 256K / 1MB	449/519
- For HP 4, IIISI, Paint Jet XL300 :	
-- 7 port 1MB / 4MB	449/649
-- 10 port 1MB / 4MB	519/719
Pacific Page & 2MB (Postscript for HP II)	389
Pacific Page II / XL (Postcript for HP II)	719
Pacific Page P.E.(HP IID,IIP,IIP+,III,IIID,IIIP)	279
Pacific Page P.E. & 2MB	405
Pacific Talk	179
Pacific Page PE XL (HP IIP, IIP+, III, IIID, IIIP)	
- Postscript w. 2MB & accelerator board	719
Plotter in a Cartridge (HP II)	225
Plotter in a Cartridge P.E.	
- for HP IID, IIP, IIP+, III, IIID, IIIP	225

PELICAN All type ribbons	visit us

18 SCANNER

TAMARACK ArtiScan Flatbed 24 bit color 256 gray levels, w. Picture Publisher LE3.0 & Recognita plus OCR or PhotoStyler Full 1.1 SCSI interface	
- TTI 6000C / TTI 8000C	1145/1445
- Slide Scan Kit (transparency,slide,X-ray)	595

MICROTEK

Scan Maker 600Z w. PhotoStyler	1150

Hand scanners... see **Logitech** in section #14

E-TECH

4256G 256 gray scale (w.OCR)	129(149)
4200C 256/4096 color (w.OCR)	275(299)

19 TAPE BACKUP

COLORADO

DJ-10 (120MB) QIC-40 w. cable	159
DJ-20 (250MB) QIC-80 w. cable	215
- AB-11 Ext tape port	45
- Cable (2 Floppies & tape back up)	9
- FC-10 Controller	95
- KE-09 Ext Kit w/o controller	75
- TC-15 controller w. data compression	195
- Unix/ Xenix driver for DJ-10, 20	99
Trakker 250MB Ext (printer port)	409
Trakker 120MB Ext (printer port)	355

EVEREX

EV-811 8 bit adapter QIC-02 for XT,AT	99

HILITE (Archive s/w included)

California 250MB, 3.5", 1" ht	195

IOMEGA

Tape 250MB insider, 3.5", 1"ht	235

MICRO SOLUTION

· 120MB / 250MB Ext (printer port)	329/389

SUMMIT

SE250 250MB w. Central Point Backup	215

CASSETTES

3M, VERBATIM	call

20 VGA CARDS

Hauppauge Win/TV-02 (122 channel tuner)	450
- Adapter Cable / S-Video Kit	52/85
Prolab Video Master	185
SIIG Multimedia Video Grabber Plus	339

All cards 1024x768 except as stated

CGA / MGP card (Monographic w. Printer)	29
ET4000 Tseng Lab 1MB / VLB 1MB	99/165
Oak067 Super VGA 512K	52
Oak077 Super VGA 1MB	69

AMI

FastView EISA VGA Graphics 1MB	295

ATI

VGA Stereo 512K w. speakers	239
Wonder XL 24 1MB, Hi-color, w. mouse	159
Graphic Ultra 1MB (VRAM) w. mouse	269
Graphics Ultra Plus 2 (DRAM)	339
Graphics Ultra Plus 2 (DRAM) w. mouse	369
Graphics Ultra Pro 2MB (VRAM) ISA	435
Graphics Ultra Pro 2MB (VRAM) VLB	445
Graphics Vantage 1MB (DRAM) w. mouse	235

DIAMOND

SpeedStar 24X 1MB 16 million color	179
Stealth 1MB (VRAM) w. Sierra Hi-color	225
Stealth 24 1MB (DRAM), 16 million color	189
Stealth 24 1MB (DRAM), VLB	189
Stealth Pro 1MB (VRAM)	289
Stealth Pro 2MB	399

GENOA

7900 1MB, 16 million color, 24 bit	119

MYLEX

GLE911 1MB, 1280x1024, EISA	399
GXE020B 4MB (DRAM), 1280x1024,	
- 2MB VRAM, TMS34020, Tiga/EISA	1039

NUMBER NINE (TI34020)

#9 GXe 1280 x 1024, 90Hz, S3-928 chip	
- Level 10 / L11 / L12	399/559/699
GXI Lite L20 TIGA,WIN, 1280-16color	565
GXI Lite L21 CAD, WIN, 1280-16color	725
GXI Level 24 CAD, WIN, 1280x1024-256	1279
GXI TC-Level 29, 24 bit 1280x1024-265K color	
- at 72Hz,4MB (VRAM) 1MB (DRAM)	1495

ORCHID

Fahrenheit VA/ VLB, w.voice annotation,24 bit	225
Fahrenheit VLB, VESA 1MB 24bit	175
Fahrenheit 1280 (DRAM) 1MB	169
Fahrenheit P9000 VLB	475
ProDesigner IIs 1MB, w. Hi-color	139
ProDesigner IIs,1MB, Hi-color for MCA	299

III SOFTWARE

ADOBE (special)

Illustrator 4.0 WIN/ upgrade competitive	359/185
Streamline for WIN	125
Plus Pack for Mac / WIN	99
Type Cartridge 1 / Type Cartridge 2	79
Type Align /Type Manager for WIN 2.0	59/67
Type Set 1/2/3 for WIN	65/65/109
Type Set: Overheads & Slides	75
Type Set: Spreadsheets & Graphs	75

AUTODESK

AutoSketch 3.0 / for WIN	125/179
Generic CADD 6.0	285
Graphic Impect / Instant Artist	95 /49
Home Series (Home/Landscape/Kitchen/Deck)	45
Multimedia Explorer	115

BORLAND

Brief 3.1 for DOS & OS/2	99
C++ Professional 3.1 for WIN	319
C++ 3.1 for WIN & Application Frameworks	485
dBase IV v1.5 for PC	439
ObjectVision 2.1 / ObjectVision Pro 2.1	102/335
Paradox 4.0 / for WIN	499/129
Quattro Pro WINDOS (special)	105
Quattro Pro for WIN	99
Quattro Pro 4.0	99
Screenery (Windows wallpaper, screen saver)	25
The World of C++ (Video Training Kit)	85
Turbo C++ for DOS / WIN	69/105
Turbo Debugger & Tools 2.0	99
Turbo Pascal 7.0 / 1.5 for WIN	115/109

LOTUS

1-2-3 for WIN (special)	299
1-2-3 Rel 3.1+ for DOS / Rel 3.4 single	385
1-2-3 for UNIX 1.1 single	499
Ami Pro for WIN	229
- Competitive upgrade	99
Lotus Organizer (special)	99
Smart Suite (123 win,Ami,Freelance,ccMail)	450

MICROSOFT

C/C++ 7.0 w. SDK / Upgrade	315/135
DOS 3.3 / 4.01 / 5.0	59/19/55
ACCESS (special)	99
Entertainment Pack for WIN 1/ 2/ 3/ 4	28
Excel 4.0 for WIN / Upgrade	299/125
Flight Simulator	39
FORTRAN 5.1	279
Fox Pro 2.5 single DOS / WIN	315
Fox Pro 2.0 (6 pack)	555
Mail Remote Workstation	125
Microsoft Encarta (CD ROM)	255
Money for WIN 2.0 (special)	49(17)
Multimedia Development Kit (w. CD Rom)	299
Office for WIN(Excel,Word,Power Point,Mail)	469
PC Mail Server for DOS & WIN (10-user)	435
Power Point for WIN / upgrade	299/99
Project 3.0 for WIN / upgrade	419/145
Publisher for WIN	125
Quick Basic Compiler 4.5	65
Quick C for DOS / WIN	69/125
Quick C Compiler w. Quick Assembler	125
Software Development Kit (SDK)	305
Sound System for WIN (w.16 bit Audio card)	199
Sound Bits (Cartoons/Hollywood/Musical)	32
Test for WIN	249
True Type Font Pack 1/Pack 2 (HP printers)	49
Video for WIN (CD & floppy)	135
Visual Basic 2.0 for WIN (new)	125
- Pro Tool Kit for Visual Basic 1.0	135
Visual Basic Professional Version (WIN)	315
- upgrade Visual Basic Professional	99
Windows 3.1/ Upgrade	65/49
Windows 3.1 Device Driver Development Kit	315
Windows for Workgroups	165
- Workgroups Add on (to WIN 3.1)	69
Windows for Workgroups Add on Starter Kit	385
- Workgroups Add on 1 User Kit	195
Word 5.5 (DOS) / for WIN	207/299
- Word for Windows upgrade	125
Works 3.0 (new) / for WIN	99/125
- Works competitive upgrade (WIN)	79

SANTA CRUZ OPERATIONS (SCO)

SCO C++	915
SCO ODT Dev.System 2.0 / tape	1475/1250
SCO ODT Personal System 2.0 / tape	1170/1086
SCO XENIX-NET 386 single server v1.3.0	675
UNIX 386 Dev Sys 3.2.4 C-Compiler & Dev Tools	899
UNIX 386 GT Oper Sys 3.2.4 Multiuser	899
XENIX 386 Dev Sys 2.3.1 C-Compiler& Dev Tools	599
XENIX 386 GT Oper Sys 2.3.4 Multiuser	650

SYMANTEC

Norton	
- Anti-Virus 2.1 (new)/ Backup 1.2	75/85
- Desktop 2.0 for WIN/ DOS	102/95
- Utilities 6.01	112
- Commander (special)	85
PC Anywhere 4.5 Remote and Host	115
Q & A	239
Time Line 5.0 / Lan Pack / for WIN	445/379/445

WORDPERFECT

DataPerfect / DrawPerfect	265
Figure Library (Bus/Edu/Fig/Holiday/Leisure)	79
LetterPerfect 1.1 / PlanPerfect	95/235
WordPerfect 5.1 (DOS)	249
- upgrade for DOS	75
- competitive trade up 5.1 for DOS	105
WordPerfect 5.2 for WIN	259
- upgrade Kit to 5.2 for WIN	40
- upgrade to WIN 5.2 from DOS	82
- competitive trade up 5.2 for WIN	105
WP Executive/ Office 3.1/ Works	145/95/99
WordPerfect Presentations(w.Sound Blaster)	295

OTHERS

3-D Charts to go	52
ACT ! 2.1 / 2 user / for WIN	225/335/235
After Dark for WIN (screen saver)	29
ALDUS	
- Freehand 3.0 for WIN	379
- PageMaker 4.0 for WIN	469
- Persuasion 2.1 for WIN	325
- Photostyler 1.1 for WIN	515
Asymetrix Multimedia Make Your Point	65
Automap (road atlas) / for WIN	49/59
CALERA Wordscan 1.1/ plus	182/425
Carbon Copy 6.1 Guest & Host / for Win	119/112
Central Point	
- Backup 7.1 oem	15
- Anti-Virus for DOS / for WINDOS	15/39
- PC Tools 8 (w. Anti Virus & Backup)	125
Clipper 5.01 / Check-It	479/85
Cooking Companion (Food Analyze)	48
Corel Draw 3.0 / upgrade	365/145
- Competitive upgrade (special)	225(175)
Da VINCE eMail 2.0 , 10 user	485
Direct Access 5.1 / for WIN (new)	59/45
DR DOS 6.0 + NetwareLite 1.1	69
Display Faces / Family Bible	77/29
Energizer Bunny (screen saver)	19
FaceLift for WordPerfect / for MS WIN	59
Fastback Plus 3.1 (special) / for WIN	89/117
Fax Grabbler 1.2 / Faxit DOS & WIN	72/79
File Maker Pro 2.0 for WIN	259
Frame Maker 3.0 / competitive upgrade	485/299
Full Motion Video MATINEE (screen saver)	32
Geoworks Pro	119
Grammatik V for DOS / WIN	57
Hardvard Graphics for WIN (oem)	375(279)
Hardvard Graphics 3.0 for DOS (oem)	399(299)
Hijaak 2.1 / for WIN / Hijaak PS	115/115/199
Hollywood for WIN (special)	199
HP Dash Board for WIN	45
IBM OS/2 2.0 / upgrade	139/99
LapLink Pro v4 / upgrade	99/49
MicroGrafx Designer 3.1	355
MicroGrafx Graphics Works for WIN	185
MicroGrafx Windows Draw 3.0	99
More Fonts / MacPrint	77/85
My Product Invoice / Micro Cookbook	49/35
PFS: First Choice (w. Prodigy start-up Kit)	79
Pacioli 2000 (special)	19.50
PC Swimsuit Calendar (DOS screen saver)	32
Power Search (File Manager)	59
Prodigy Starter Kit 3.1	29
Procomm Plus 2.1 / for WIN	69/95
Professional Draw / upgrade competitive	269/129
QA Plus 4.7 / for WIN	89
Quark X Press 3.1 for WIN	569
Quarterdeck	
- DesqView 286 /DesqView 386 v2.4	69/125
- DesqView / X	165
- DesqView / X Network Manager (TCP/IP)	129
- Qemm 386 v6.0 / Manifest / Qram	62/39/49
Quicken for DOS 6.0 / WIN	45/45
QuickBook / QuickPay (payroll)	87/39
QuickBook & QuickPay	110
Right Writer 5.0 / for WIN	49
Speedstor 6.5 / SpinRite III	61/call
Stacker AT-16 2.0 (HW+s/w)	179
Stacker Data Compression 3.0 / upgrade	95/55
Star Trek (Screen saver for WIN)	37
Super PC-Kwik	59
Superstor Pro 2X / Superstor 2X	79/65
The Far Side (computer calendar)	29
Time Slip v.5.0	189
Turbo CAD v3.0 (design & drafting)	89
Turbo Tax 1040 headstart DOS/ WIN	45
Ventura Publisher 4.1 (new)	485
- Ventura Publisher 3.0 + upgrade 4.0	435
- Ventura Publisher 4.1 Education special	199
Vista Pro / Wave for WIN	69/75
Winfax Pro 3.0 (new) / Will Builder	85/19
XEROX Rooms for WIN	64
XTree Gold 2.5 / XTree for WIN(special)	89/49

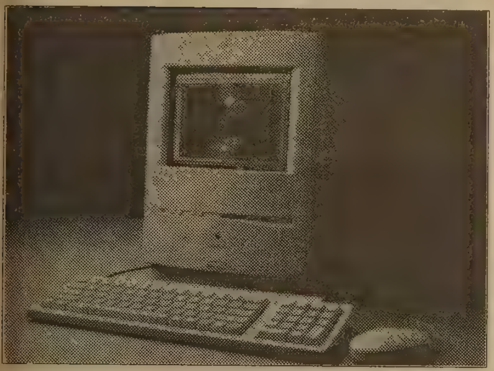
Educational Software & Games ... on sale

PRODUCT SPOTLIGHT

New Products

MACINTOSH HARDWARE

MACINTOSH COLOR CLASSIC

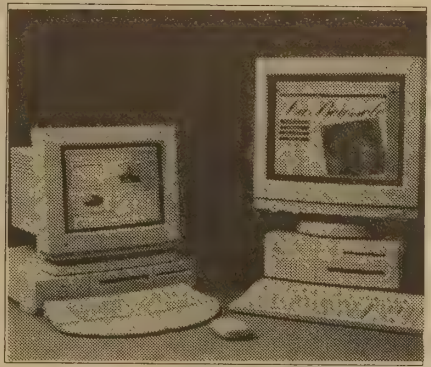


The new Color Classic offers exceptional color, greater expandability, Macintosh LC expansion capability, and an energy-saving feature. Built around a 16MHz 68030 microprocessor and a 10" Sony Trinitron display, the Color Classic supports 256 colors with 512 x 384 pixels and comes standard with 4MB of RAM, a 40MB internal hard drive, keyboard, mouse, built-in microphone, and power on/off from the keyboard. The Color Classic is the first Apple desktop computer that automatically reduces power consumption to less than 25 watts when it is idle. ($1389) Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. (408)996-1010.

COLOR POWERBOOK

The PowerBook 165c is equipped with a new passive matrix color display. The 640 x 400 backlit display supports a standard 256 colors from a palette of 4096 colors. In addition to the new color display, the 165c is powered by a 33MHz 60808 microprocessor and has a 68882 math coprocessor. The on-board video supports Apple color and monochrome monitors, some VGA and SVGA displays, and large projection monitors. The 165c also supports video mirroring and dual monitor mode. (PowerBook 165c 4/80, $3399) Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. (408)996-1010.

MACINTOSH CENTRIS 610 AND 650



The Macintosh Centris is a new line of midrange personal computers that offer the high performance of a Motorola 68040 microprocessor at a significantly lower price. The Centris 610, which features a low-profile industrial design, is powered by a 20MHz 68LC040 microprocessor that does not include a floating-point unit. It offers up to two times the performance of the Mac IIvx or IIci. The Centris 650, based on the same design as the IIvx and IIvi, is powered by a 25MHz 040 CPU. Both computers have built-in video support for all Apple displays and are available with an optional internal CD300i CD-ROM drive and optional on-board Ethernet. (Centris 610 4/80, $1895; Centris 650 4/80, $2699) Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. (408)996-1010.

PRODUCT UPDATES

➢**AStar** is shipping **VisionMaster 1.5**, its groupware product designed to manage the creation and revision of documents on the Macintosh. AStar Technologies, Inc., PO Box 1100, Littleton, MA 01460. (508)486-8532.

➢**Claris** announced the availability of the **FileMaker Pro Translator**, a new utility that allows owners of Symantec's DOS-based Q&A 4.0 database program to easily transfer their database to FileMaker Pro for Windows. Claris Corp., 5201 Patrick Henry Dr., PO Box 58168, Santa Clara, CA 95052-8168. (408)987-7000.

➢**Fractal Design Painter v2.0** adds more than seventy new features, brushes, and functions for both Windows and Macintosh computers. Fractal Design Corp., 335 Spreckels Dr., Suite F, Aptos, CA 95003. (408)688-5300.

➢**In Focus** lowered prices of eight of its **LCD projection panels**. The reductions in suggested retail prices range from 6% to 25%. In Focus Systems, Inc., 7770 SW Mohawk St., Tualatin, OR 97062. (503)692-4968.

➢**Macromedia** simultaneously released **Authorware Professional 2.0 for Macintosh and Windows**. Macromedia, Inc., 600 Townsend, San Francisco, CA 94103. (415)442-0220.

➢**Revelar** released **ConstructionMac! 2.0** and **ConstructionPC! for Windows**. Revelar Corp., 772 E., 3300 S., Suite 100, Salt Lake City, UT 84106. 1-800-669-5191.

➢**SuperStor** introduced the **Communications Pak for Windows**. The bundle includes SuperStor PRO, a data compression utility; WinFax PRO, send and receive fax software; and Crosstalk for Windows, a data communications package. AddStor, Inc., 1040 Marsh Rd., Menlo Park, CA 94025. (415)688-0470.

APPLE LASERWRITER SELECT SERIES

The LaserWriter Select 300 and Select 310 are powered by a Fuji Xerox 5-page-per-minute laser engine and share the same compact design. The printers come standard with a letter cassette tray that holds 250 sheets of paper. The Select 300 is an expandable laser printer ideal for

Continued

individual users. Its 300dpi resolution, combined with FinePrint edge-smoothing technology and thirty-nine scalable TrueType fonts ensures high-quality results. The printer can be upgraded to support Adobe PostScript. The LaserWriter 310 is an affordable PostScript printer powered by AMD's AM29205 RISC processor. It is designed for both Macintosh and Windows environments. (Select 300, $819; Select 310, $1079) Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014. (408)996-1010.

PC HARDWARE

IQE PRINTNET

IQE PrintNet connects entire work groups to a single printer for fast and efficient printing. It works with any printer using a parallel port input, whether it is a laser, ink jet, or dot-matrix printer. When a printer is plugged into the PrintNet's parallel connector, up to eight users can instantly send their documents to a printer from 2000 feet away using telephone-type serial cable. The IQE PrintNet is an alternative to traditional LANs because it operates without any complex commands, memory-hungry software, or a network administrator. ($345 with four serial inputs, and $545 with eight serial inputs) IQ Engineering, Inc., 958 N. Pastoria Ave., Sunnyvale, CA 94086. (408)733-1161.

ADDA PC VIDEO CARDS

VGA-AVer Pro is a presentation tool that bridges VGA capabilities with video devices. Using advanced genlocking technology, the VGA-AVer Pro synchronizes VGA display with standard composite video and S-VHS video (NTSC and PAL). Simply overlay the image input from your VCR, videodisc player or video camera with displaying VGA graphics, and then output to any TV, VCR, or other video display device. The HQO Pro companion board provides professional video users with component (YUV) and RGB/SYNC broadcast-quality video input and output. Fade-in/fade-out is built in to fade one scene into another. (VGA-AVer Pro, $795; HQO Pro, $395) ADDA Technologies, Inc., 48501 Warm Springs Blvd., #105, Fremont, CA 94539. (510)770-9899.

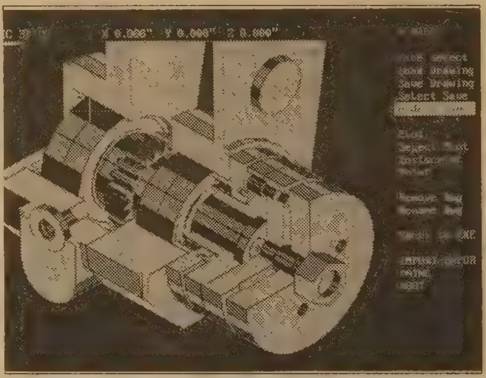
PC SOFTWARE

IDF IDENTIFILE

Viewing cryptic DOS 8+3 file names can become something of the past. Identifile is a fully featured file manager that can attach your own file description to any file name. You can permanently attach a 31-character description or comment to each filename. Scan a directory at a glance and know what each file contains. Identifile offers additional capabilities that make it stand out from a top file manager. It uses a novel user interface: using two cursors, one for commands, one for files, you can match files and commands faster. All commands are accessed by their first letter. It is also highly customizable and even allows you to have separate configurations for different users. ($59.95) Almax Software, Inc., 2000 Powell St., Ste. 1200, Emeryville, CA 94608. (510)601-620.

GENERIC 3D RELEASE 2

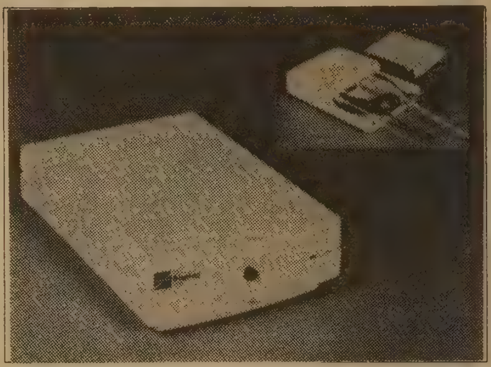
Generic 3D Release 2, Autodesk's three-dimensional conceptual modeling software, has the same interface as Generic CADD 6.0 2D design and drafting package. This makes it easier for DOS users to employ 3D as a conceptual design, visualization, and presentation tool. Enhancements to Generic 3D Release 2 include cursor alignment and tracking, sculpt mode, AutoCAD compatibility, nested commands, a large library of sample symbols, and other features. ($399. Upgrades are $75 for Generic 3D owners) Autodesk, Inc., Retail Products Division, 11911 N. Creek Pkwy. S., Bothell, WA 98011. 1-800-228-3601.



MACINTOSH ACCESSORIES

MAC DISPLAYLINK

Mac DisplayLink is an external video encoder that produces either a 640 x 480 or 512 x 384 pixel image. Supporting both standard NTSC and high-resolution S-Video signals, Mac DisplayLink provides an alternative to expensive displays or projectors. You can now display Macintosh video output on cost-effective presentation video equipment. Use the Apple 8/24, 8/24GC, or compatible card to display an RGB signal onto conventional video monitors, video projectors, or record the output on videotape. All the cables necessary to connect to the computer and desired video device are included. (Model CF-530, NTSC, with Action!, $489, and Model MF-530, PAL, $649) Display Tech, Inc., PO Box 6722, Concord, CA 94524. (510)676-9362.



NITECAPS

NiteCaps are new Macintosh computer covers with panache and personality. They offer a fun way to put your computer to sleep at the end of the day or just to add color to your work environment when you are not using your Mac. Made from brightly colored, machine washable, 100% cotton fabrics, they provide protection against dust, sunlight, and cookie crumbs. They come in both crazy and conservative prints. NiteCap covers include sizes for all compact Macs, IIci, IIsi, IIcx, and many PC compatibles. Covers are also available for keyboards and printers. NiteCaps, Inc., 28A Woodland Ave., San Francisco, CA 94117. (415)665-0668.

REVIEWS

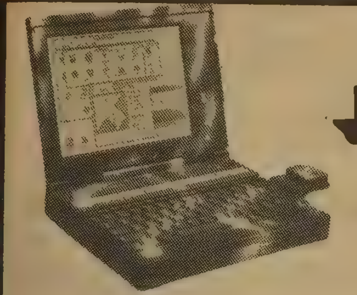
GAME REVIEWS

By Mike Markowitz

OXYD

Designed By: Meinolf Schneider
Published By: Dongleware
For: MS-DOS (640K, Hercules, EGA or VGA), Macintosh, Amiga, Atari ST, and NeXT
List Price: $39 for manual, $4.00 for program disk. (Program can also be downloaded from many online services)

Continued



Texas Instruments

TravelMate™ 4000
Notebook Computer

New Lower Prices

TM4000 WinSx /25 w/120MB HD drive	**$2,359.00**
TM4000 WinDx /25w/120MB HD drive	**$2,739.00**
TM4000 WinDx /25 w/200MB HD drive	**Call**
TM4000 WinDx2/50 w/200MB HD drive	**Call**

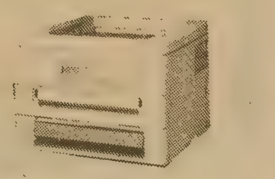
- 5.7 Pound, 3-5 Hours Battery Life.
- 10" VGA Display 640 X 480, External 1024x768
- 4MB RAM Expandable to 20MB
- MS-DOS 5.0,Winodws 3.1,TravelPoint Device.

TI TM4000 WinSLC

- 80486-25Mhz 60/80MB HD
- 10" VGA 640 X 480
- 2/4MB RAM Exp. to 6MB
- DOS 50, Windows 3.1
- Travel Point Mouse,

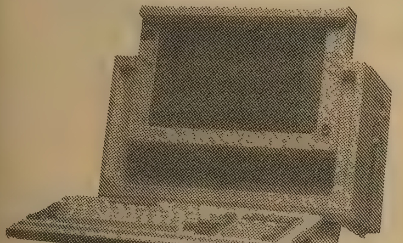
486SLC performance at 386SL prices $1739/$1939

TI MicroLaser



- PostScript Laser Printer
- RISC 8220 (Turbo)&68000
- PS17 9PPM $1159
- PS35 9PPM $1259
- PS35 Turbo 9PPM $1499
- AppleTalk for Mac $50

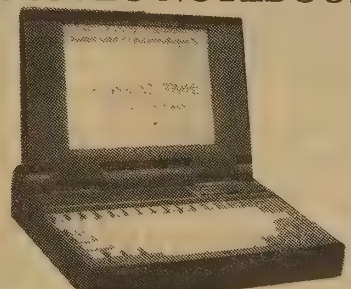
LCD / G.P. / COLOR VGA PORTABLE



- **80386-40DLC**
- **1MB Exp. to 32MB**
- **2 or 3 expansion Slot**
- **1.2MB w/FHDC (1.44MB optional)**
- **VGA 640 X 480 16 Gray Scale**
- **2 Serial 1 Parallel**
- **120MB Hard Disk**
- **One yearWarranty Parts & Labor**

LCD	Gas plasma	color
$ 1595	**$ 1795**	**$2799**

486-33DLC NOTEBOOK



- **80486-33DLC**
- **9" LCD VGA Display**
- **4MB RAM Exp. to 20MB RAM**
- **1.44MB FD,**
- **Built-in Hand Scanner Port.**
- **1 Serial, 1Parallel, VGA Ext. Port.**
- **Buit-in Fax/Modem, Mouse port.**
- **One SCSI-2 Port, Keyboard Port**
- **One year Warranty Parts & Labor**

$2299 130MB / **$2499** 210MB

486-50DX2 / 486-40DLC

- **80486-50DX2 / 80486-40DLC**
- **9" LCD VGA Display**
- **4MB RAM Exp. to 20MB RAM**
- **1.44MB FD,**
- **Built-in Hand Scanner Port.**
- **1 Serial, 1Parallel, VGA Ext. Port.**
- **Buit-in Fax/Modem, Mouse port.**
- **One SCSI-2 Port, Keyboard Port**
- **One year Warranty Parts & Labor**

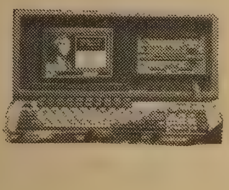
130MB	210MB	130MB	210MB
$2695/	**$2899**	**$2459 /**	**$2695**

Toshiba Notebook

Satellite
T1850C

T1800SX	
386-20 2MB 60MB HD	**Best**
T1850/T1850C	
386-25 4MB 80MB HD	**Best**
T3300SL	
386/325SL 2mb 80/120mb hd	**Best**
T4400SX/T4500SX	
485-25SX 4mb 120mb hd	**Best**
Color (Active)	Call for Best Price

386/486-33DX CRT Portable



386/486-33DX, 1MB RAM, 120MB HD, Color SVGA

$1595/$1859

IBM/ValuePoint 433DX

- **80486-33DX, (ISA)**
- **8MB Exp. to 32MB**
- **1.44MB Floppy Drive**
- **1 Serial, 1Parallel, 1Mouse Port**
- **101 Enhenced Keyboard**
- **120MB Hard Disk , 5 Exp. Slots**
- **SVGA(1024x768), Monitor : Optional**
- **OS2/windows, mouse**
- **One year on siteWarranty**

Call

McTEK 486-33/50DX

- **80486-33DX/ 486-50DX w/64K Cache**
- **4MB Exp. to 32MB**
- **7 Expansion , 2 Local Bus Slot**
- **1.2MB Floppy Drive**
- **2 Serial, 1Parallel**
- **101 Enhanced Keyboard**
- **120MB Hard Disk (17ms)**
- **Option : VGA card and monitor**
- **One year Warranty Parts & Labor**

$1259 / $ 1459

McTEK 486-33/50 (EISA)

- **80486-33/50DX w/64K Cache**
- **4MB Exp. to 32MB**
- **8 Expansion Slot**
- **1.2MB Floppy Drive**
- **2 Serial, 1Parallel**
- **101 Enhanced Keyboard**
- **120MB Hard Disk (19ms)**
- **Option : VGA card and monitor**
- **One year Warranty Parts & Labor**

$1559 / $1799

Monitors / Video Card

Trident VGA w/512K	$49
Paradise VGA w/1MB (OEM)	$89
Tseng Lab VGA w/1MB	$109
Fahrenheit 1280 w/1mb VRAM	$209
Fahrenheit 1280 VL Bus	$255
ATI Ultra Plus w/1mb	$279
ATI Ultro Pro w/2MB	$559
Diamond Stealth w/imb VRAM	$209
SVGA Monitor .28mm	$289
SVGA Monitor non-interlaced.	$335
VIEWSONIC 6FS	$599
NEC 3FGX .. (In Stock)	$649
NEC 4FG .....(In Stock)	$769
NEC 5FG .....(In Stcok)	$1399
SONY 1403S	$619
SONY 1704S	$1199
Mitsubishi 20" 1280 X 1024	$1799

Printer

HP IIP+	$799
HP IIIP	$999
HP 4 /4M.	Call
HP Desk Jet Plus 500	$399
HP Desk Writter (Mac)	$399
HP Scanner IIP/IIC	$899/$1490
Citizen GSX240 Plus	$299
Citizen PN48	$299
Citzen 200GX (9 Pin)	$169
Canon BJ-20ex	$329
Okidata OL400	$685
Panasonic KXP2124	$309
Panasonic 4410 5ppm	$739
NEC Model 95 (PS Level II)	$1375
QMS410	$1399
IBM Laser Printer Model 10	Call
Canon BJ-200	$379

Misc. & Tape Drvie

Logitech Mouseman	$75
Logitech Trackman	$89
Microsoft Mouse	$95
Scanman Plus/256 w/OCR	$399
Artiscanner 600dpi Color	$1029
ScanPlus 3000 Color	$599
Colorado 120mb tape backup	$225
Colorado 250mb tape backup	$275
Modem 2400 Baud Int.	$49
Modem/fax 2400/9600	$89
14400 Fax/Modem Int.	$259
14400 Fax/Modem Ext.	$299
MultiMedia Starter Kit .(Int.)	$439
MultiMedia Starter Kit .(Ext.)	$519
MultiMedia Upgrade Kit(Ext.)	$519
SounBlaster Pro	$185
Video Blaster	$345

Hard Disk Drive

40MB IDE	$189
80MB Maxtor/Conner	$225
120MB Quantum (IDE)	$269
120MB Conner (IDE)	$275
120MB Maxtor (IDE)	$269
120MB Maxtor for Mac int.	$359
200MB Conner (IDE)	$369
200MB Maxtor (IDE)	$369
330MB Maxtor (IDE)	$599
240MB Quantum (SCSI)	$599
540MB Conner (IDE)	$999
Norton Anti Virus	$55
PC Anywhere	$89
Wordperfect 5.1	$259
Wordperfect 5.2 Tradeup	$99
Microsoft Word/Excel.	$129
Microsoft Windows 3.1	$95

Monthly special

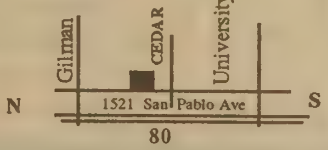
AST PowerExec Notebook Computer 386/486	Best
IBM Think Pad	Call
NEC UltraLite SL/20 4MB 80MB / 120MB HD	$1759/1979
NEC UltraLite SL/25 2MB 80/120MB MB HD	$2499/2899
NEC Laser Printer 95	$1375
SHARP6785 386-25SL	$1769
Toshiba CD ROM int.	$499
Upgrade computer	Call
Rental	Call

McTek Systems, Inc.
1521 San Pablo Ave. Berkeley, Ca 94702
Tel : (510) 525-5129

AUTHORIZED
ALDUS, AST, NEC
IBM, LOTUS, NOVELL,
TI,HERCULES,ORCHID

VISA / MASTER ACCEPTED

ALL PRICES SUBJECT TO CHANGE



The life-giving Oxyds have closed up. Without the oxygen they emit, the entire maze-world (over one hundred landscapes!) is threatened. Your task is to use the mouse to guide a black marble through the mazes. When an Oxyd is touched by the marble it opens up, revealing a hidden pattern or color. Two Oxyds in each landscape carry the same pattern. If you make a match, they both stay open; if not, the first closes up again. If you open all the Oxyds in a landscape, you advance to the next level.

On the surface, Oxyd resembles that old memory game "Concentration." But things get more interesting as you advance deeper into the maze. Objects have to be moved and puzzles solved. Laser beams can be reflected by strategically placed mirrors to touch an Oxyd. You have to avoid Skulls and flying Rotors than can destroy your marble on contact.

The MS-DOS version we reviewed came on a single high-density 3.5" disk. After installation, the program took less than 1MB of hard disk space. There are separate executables for each video mode, so you only need to install the ones you need. The EGA version ran in monochrome, for maximum resolution. The "Read-me" files and the program's online instructions are available in English, French, and German. A two-player version can be played over a modem, as long as both computers are of the same kind.

Oxyd strikes a nice balance between hand-eye coordination and mental puzzle solving. The graphics are attractive and the animation is very smooth. The code was written in Modula-2, and refined over a period of ten years (!) largely for the German Amiga community, where games are taken very seriously indeed.

Dongleware has devised a unique distribution method. The program can be freely distributed, and may be downloaded from CompuServe, GEnie, Delphi, the Internet, and many BBSes, but to access anything beyond the first ten introductory levels you have to enter a code from The Oxyd Book, which can be ordered for $39 plus $3 shipping and handling. (Dongleware, Inc., 35 Howard St., Cambridge, MA 02139-2909. 617/497-1130)

Graphics and Animation: 9
Sound: 9
User Interface: 9
Overall Value: 9

YEARN 2 LEARN: PEANUTS

Designed By: Noriko Kamei
Published By: Image Smith
For: Macintosh (4MB RAM, 13" or larger color monitor, system 6.07 or higher)
List Price: $64.95

"Everyone complains about the lack of quality software required to drive the multimedia industry," says Image Smith's president, Dominique Claessens. "By licensing popular cartoon characters, we have a higher product cost, but we feel it is warranted by the way our licensed characters engage a child in learning activity while having fun."

Yearn 2 Learn: Peanuts is the first in a projected series of educational multimedia software packages. It includes five separate activities, designed for learners aged 3 to 10 years.

Interactive Comic Strips are five Peanuts episodes, with excellent voice narration. You can click on an individual word to hear it spoken. Each frame contains hidden "hot spots" that trigger audio or animation special effects.

Math Games have three levels of difficulty that range from simple counting to addition and multiplication.

Geography Games are based on scrambled jigsaw puzzles of the forty-eight contiguous states, divided into four regional groups. You have to click and drag each state into the proper location, where it will snap into place. For a few dollars, you can get a real jigsaw puzzle in any toy store that does the same thing more effectively.

The Coloring Book is the best software implementation of this idea that I have ever seen. When you click to select a crayon, the program speaks the name of the color. You can draw or erase in five brush sizes. The black outlines are on a separate graphic "layer," so they always show through the colors.

The Flying Ace game teaches hand/mouse coordination by letting you pilot Snoopy's dog house through an aerial obstacle course of mountain peaks and balloons. The collision-detection algorithm is too unforgiving for a kid's game—if you intersect by even one pixel, you crash.

The program requires a whopping 11MB of hard disk space. It is installed from compressed files on four high-density disks. The program was apparently developed in Macromind Director. There are noticeable delays (even on a maxed-out Mac IIci!) when switching between program activities, and the software displays cute "Please Wait" still frames during the transitions. A CD-ROM version, clearly more suitable for such quantities of animation and sound, is under development. A well-illustrated 32-page manual documents all the features of the software in a way that linear-minded grown-ups can understand, but any kid could probably discover all the options by diligently fooling around with it for a few hours.

The packaging consists of a box shaped like Snoopy's dog house, a nonstandard size and shape that will surely irritate retailers desperate for shelf space.

It is unusual to see a program designed for home and school use that so completely ignores the hardware limitations of the installed base of home and school computers.

You must have a 13" or larger monitor to run Peanuts. Most of the Mac LC systems in homes and schools have the affordable little 12" monitor, which can only display about 63% as much information. If this were a program that relied on high-resolution scanned images of complex graphics, this might be a reasonable design decision; but Good Grief, these are cartoon characters! (Image Smith, Inc., 1313 West Sepulveda Blvd., Torrance, CA 90501. 310/325-1429 or 415/292-3542)

Graphics and Animation: 9
Sound: 9
User Interface: 6
Overall Value: 7

THE LOST TRIBE

Designed By: Steve Vance and Frank Andrews
Published By: Lawrence Productions
For: MS-DOS (640K, VGA/MCGA graphics, mouse optional, supports AdLib and Sound Blaster audio), Macintosh and Apple IIGS versions also available
List Price: $39.95

The Lost Tribe simulates leadership and survival in a band of Ice Age hunter-gatherers. Your homeland has been destroyed by a volcano, and you must lead twenty-three hungry and cranky survivors on a quest to find ancestral hunting grounds, far to the east.

To guide you, the ancestors left a Sacred Mapskin, which fills the center of the screen. Each terrain hexagon on the map represents one or two day's travel through forest, plains, mountains, river valleys, lakes, hills, and deserted villages. The Survival Rock and the Status Rock (on the left side of the screen) display symbols that indicate how well you are doing. Winter is coming on, and you must find your new home before snowfall makes travel impossible.

There are six scenarios of increasing difficulty. In the hardest scenarios, most of the Mapskin is an unexplored blank.

Random events challenge you with multiple-choice dilemmas. Make wise decisions and your Leadership Rating will increase. Make enough bad decisions, and the tribe will banish you, ending the game. Politics hasn't changed much in ten thousand years.

You decide each day whether to hunt, gather roots and berries, travel, rest, feast, practice spear-throwing, send out scouts or make carvings to boost your spiritual energy. Your performance in hunting appears as humorous stick-figure animations in the style of cave wall paintings.

The user interface makes intelligent use of

Continued

HKG COMPUTERS
Hardware Knowledge Group, Inc.

$0 DOWN
90 DAYS SAME AS CASH

ON APPROVAL OF CREDIT

1 YEAR PARTS & LIFETIME LABOR WARRANTY!

All Systems Include: Mini Tower Case; 1MB RAM; IDE Controller (2HD, 2FD); AT I/O (2s, 1p, 1g) Ports; 101 Enhanced Keyboard

386SX-25
- 80 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$719

386DX-40
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$838

486SX-25
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$939

486DX-33
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1099

486DX-50
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1249

486DX2-66
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1359

486DX-33
VESA Local Bus
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1139

486DX2-66
VESA Local Bus
- 64K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1399

486DX-50 EISA
- 256K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor and Card

$1499

PERIPHERALS AND ACCESSORIES

MONITORS

Impression 102 4x768 .39dp	$220
Impression 1024x768 .28dp	260
Impression 1024x768 .28, NI	295
Impression 3	305
Impression 7	850
Viewsonic 4E	300
Viewsonic 6E	339
Viewsonic 6FS	615
Viewsonic 7	999
NEC 3FGX	650
NEC 4FG	750
NEC 5FG	1375

HARD DRIVES

40 MB IDE	$150
80 MB IDE	205
130 MB IDE	250
170 MB IDE	285
213 MB IDE	365
200 MB SCSI	CALL
535 IDE/SCSI	CALL
1.2 GB SCSI	CALL

VIDEO CARDS

Trident 512K	$40
Trident 1 MB	60
Diamond Stealth VLB	180
Diamond 24X	180
ATI Graphics Ultra	280
Orchid Pro Designer IIs	135
Orchid Fahrenheit	195

PRINTERS

Panasonic 1123	$208
Panasonic 2123	245
Panasonic KX-P4410	645
Panasonic KX-P4430	895
HP Laser IIP+	785
HP Laser IIIP	999
HP Laser IV	1420

MISC.

2400B Modem	$38
Fax/Modem (9600/2400)	70
Summit Tape Back-Up	
120 MB	185
250 MB	230
Colorado Tape Back-Up	
120 MB	195
250 MB	245
Archive Tape Back-Up 250 MB	195
Ethernet Card 16-Bit	99
Logitech Scanman 32 w/OCR Software	139/185
Logitech Scanman 256 w/OCR Software	249/299
3 Button Mouse	15
Logitech First Mouse	40
Logitech MouseMan	75
1.2/1.44 MB Floppy Drive	50
Chicony 101 Enhanced Keyboard	20

We DO CUSTOM PROGRAMMING AND SOFTWARE CONSULTING
•DOS •WINDOWS •C++
•DBASE •FOX PRO •CLIPPER
CALL FOR MORE INFO

MULTIMEDIA

HKG MULTIMEDIA PACKAGE A
Panasonic CD-ROM/Soundblaster Pro with
3 Software Titles (Your choice from list below) ... $450

HKG MULTIMEDIA PACKAGE B
Sony CD-ROM/Soundblaster Pro with
3 Software Titles (Your choice from list below) ... $450

HKG MULTIMEDIA PACKAGE C
Panasonic CD-ROM/Mediavision 16-bit Card with
3 Software Titles (Your choice from list below) ... $480

HKG MULTIMEDIA PACKAGE D
Sony CD-ROM/Mediavision 16-bit Card with
3 Software Titles (Your choice from list below) ... $480

YOUR CHOICE OF THESE CD-TITLES TO BUNDLE WITH YOUR KITS:

- San Diego Zoo Presents "The Animals"
- Beauty & The Beast Storytime
- World Atlas v3.2 (Software Toolsworks)
- LOOM
- Sherlock Holmes
- Jones in the Fast Lane
- Stellar Seven
- Game Master
- King's Quest V
- Arcade Battles
- Chessmaster 3000 MPC

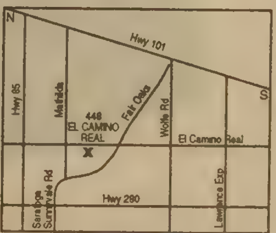
•For Speakers	Add $12
•For MIDI Kit	Add $45
•For Windows 3.1 on CD	Add $50
•For Microsoft Bookshelf	Add $50
•Video Blaster	$370
•Sound Blaster Pro	$140

HKG COMPUTERS
Hardware Knowledge Group, Inc.

M-F: 10am-7pm
Sat: 10am-7pm
Sun: 11am-6pm

448- EAST EL CAMINO REAL
SUNNYVALE, CA 94087

(408)-SEEK-HKG (733-5454)
Fax: (408) 733-5456



Corporate PO's Welcome

Prices Subject To Change W/O Notice

the right mouse button to zoom the map to full-screen and display explanations of various pictograms. An online reference guide includes personality profiles of your companions; notes on land forms, tools, and animals and discussions of values, customs, and rituals shared by tribal peoples. The 18-page manual includes complete instructions and a bibliography. There are no screen shots, unfortunately.

The package includes high-density 5.25" and low-density 3.5" disks. The program files occupy about 4.7MB of disk space after installation.

The Lost Tribe teaches kids about the lives of our distant ancestors, while developing such skills as map reading, leadership, problem solving, and conflict resolution. The program has a sense of humor and humane values, although hard-core academics might object to the New Age mysticism apparent in some of the reference guide topics. (Lawrence Productions, Inc., 1800 South 35th St., Galesburg, MI 49053. 1-800-421-4157)

Graphics and Animation: 8
Sound: 7
User Interface: 7
Overall Value: 8

PC HARDWARE

EZTAPE FOR WINDOWS

Published By: Maynard Electronics
List Price: $379 for a 120MB internal system (higher capacities and external units also available)
Reviewed By: Woody Liswood

A hard drive on your Windows-based PC, with Ami Pro, Excel, Arts & Letters, SuperBase, the Complete Communicator, Eclipse Fax, Crosstalk, Delta Graph, a couple of games, a utility or three, and some variety of additional software is filled with megabytes of applications and information. A full backup onto floppies can easily require eighty floppy disks, even when using the compression features of the most recent releases of backup programs, and 120 or more disks without compression. One alternative way around this floppy disk maze is to switch to a tape backup system. This does cost more, but when compared to the inconvenience of more than eighty disks, tapes make a lot of sense.

Eztape is a Windows-based tape backup solution that includes everything in a single package—software, hardware, cards, and cables. Installation is easy. Put the card into your computer. Place the tape unit in an empty floppy drive bay; hook power to the card and the tape unit; run the cable between card and the tape. You do have a variety of interrupts and memory addresses which let you work around conflicts. On one machine I tested this setup with, everything ran just out of the box. On another motherboard, I had conflicts. I called the support line and within ten minutes a helpful technician had given me a couple of AUTOEXEC set commands that allowed everything to work with the new motherboard.

You do backups regularly, don't you? If not, a disaster is just waiting to happen. Without fail, you will inevitably trash something the night before you must print and present that critical report. Restoring your backed up data, easily, could save your job and your sanity.

Eztape for Windows makes backup and restore as easy as can be anticipated. After it is installed, Eztape iconizes its major functions, such as full backup and full restore, so you can do either of these functions with a single click on the icon.

The first time you use Eztape, it would be good to go into the main program and verify the default settings. For instance, Eztape offers compression settings from none to the maximum. The first thing I did was to set all backups to maximum compression, letting me get about 160MB of files onto an 80MB tape. I have done backups at all of the settings, and can find no difference in restoring from any of these compression ratios.

Eztape has a variety of restore options, including a set of restore options specifically for networks. One of the restore features I particularly like is the ease-of-use with which I can have Eztape restore to the same directory structure for the backup, or restore to a specific directory during the restore process.

Eztape for Windows is an excellent solution for backing up, saving, and restoring large amounts of Windows-based information. (Maynard Electronics, Inc., 36 Skyline Dr., Lake Mary, FL 32746. 407/263-3500)

MACINTOSH HARDWARE

GCC WRITEMOVE II

Manufactured By: GCC Technologies
List Price: $599
Reviewed By: Mike Markowitz

Thermal fusion is usually associated with hydrogen bombs, but Japan's Citizen company invented a nonexplosive "PN48 thermal fusion print engine" which GCC has packaged into a tiny printer aimed at the upscale PowerBook market.

WriteMove II measures 2" wide, 11.5" long, and 3.5" deep. It delivers resolution of 360 x 360 dots per inch (dpi) in a single pass. With its NiCad battery (7.2 volts at 900 milliamps) it weighs 2.5lbs. You can print about twenty typical pages on one charge. The battery needs six hours to recharge, and survives about six hundred recharge cycles before needing replacement.

A separate 120 V power adapter has prongs that fold down for easier storage (nice design feature). GCC also sells 100V (Japan) and 220

Continued

CALCOM PRODUCTS
(Made In U.S.A.)

WORLD'S FASTEST FAX MODEM!

V.32bis/14,400bps FULLY FEATURED HIGH SPEED DATA/FAX MODEM

ONLY $195

FEATURES:
- V.32bis/V.42bis DATA/FAX PC HALF CARD MODEM
- 14,400bps DATA/FAX CONNECTION SPEED W/AUTO FALLBACK
- V.42bis/MNP5, V.42/MNP2-4 DATA COMPRESSION & ERROR CORRECTION (EFFECTIVE THROUGHPUT UP TO 57.6Kbps)
- ENHANCED HAYES AT COMMAND SET & CLASS 2 FAX COMMAND
- DATA/FAX COMMUNICATIONS SOFTWARE PACKAGE INCLUDED

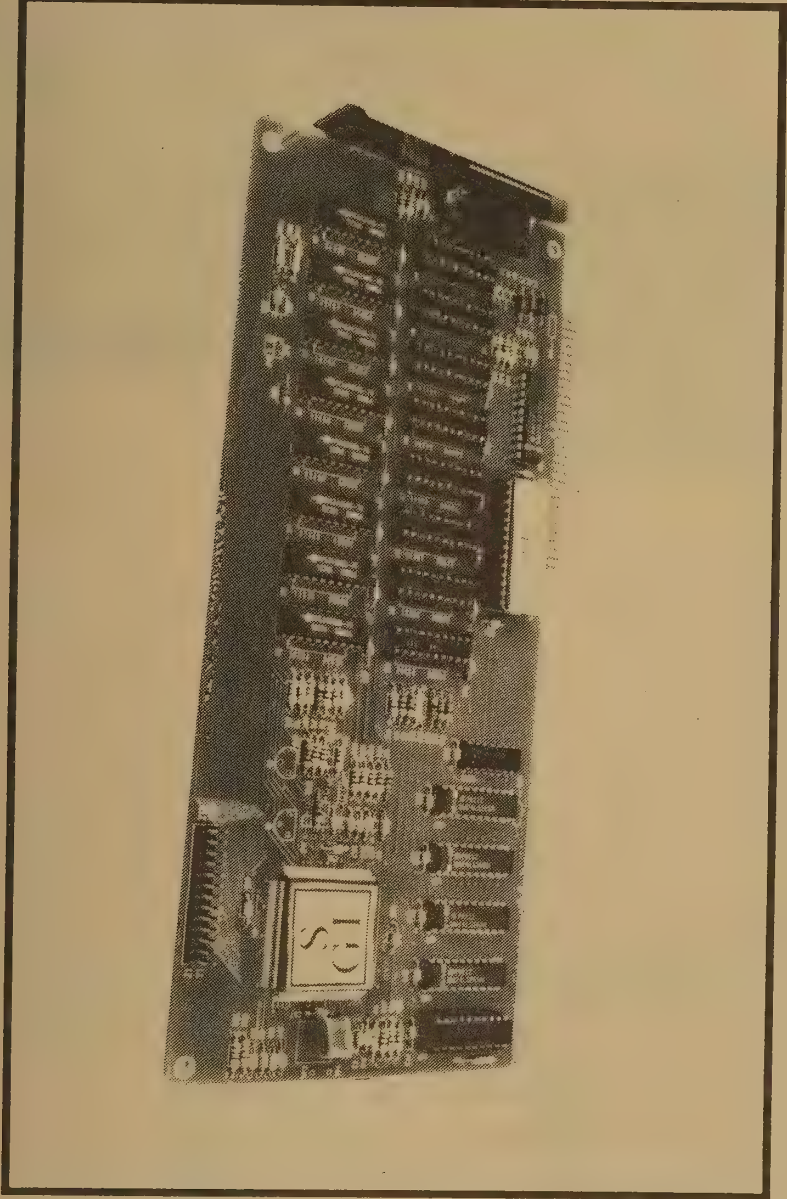
OTHER SPECIALS:
9624F 9600bps SEND & RECEIVE FAX W/2400 DATA ..$49
2400S 2400bps DATA MODEM...$25

CALL TODAY 800/546-9222

DEALERS & DISTRIBUTORS INQUIRIES WELCOME

BREAK THE 8 BIT BARRIER WITH THE MOST AFFORDABLE VL-BUS GRAPHIC CARD!!!

INTRODUCING THE SPIDER VL-BUS



SPECIFICATIONS

* VESA LOCAL BUS (VL-BUS)
* Highest resolution of 1280 x 1024 in 256 colors (with 2MB of RAM)
* Flicker-free high refesh rate of 72Hz (1024 x768, 800x600,640x480)
* Display up to 16.7 million colors
* 1MB display memory expandable to 2MB
* Easy drivers installation with menu options for DOS and Windows

Drivers Supports:

. WINDOWS 3.0 & 3.1
. OS/2 VER 2.0
. MS-WORD
. AUTOCAD R9/10/11/12
. ORCAD
. PCAD
. AUTODESK 3D STUDIO
. AUTODESK-SHADE VER 2.0
. GEM VER 2.2
. LOTUS 1-2-3 R 2.0/2.1/2.2
. SYMPHONY R 1.1
. VENTURA PUBLISHER V 1.1-2.0
. WORDPERFECT 5.0/5.1
. WORDSTAR R.V4.0

DISTRIBUTORS AND RETAILERS PLEASE CALL (408) 956-1231
FOR INFORMATION OR DEMONSTATION.
END USERS PLEASE CALL (408) 956-1232 FOR DEALERS NEAREST YOU.

SPIDER GRAPHICS, INC.
801 AMES AVE., MILPITAS, CA 95035
TEL: (408) 956-1231
FAX: (408 956-1314
BBS: (408) 956-1342

• BEST MEMORY PRICES • HIGHER QUALITY
• SAME DAY SHIPPING • FREE REPLACEMENT WARRANTY

SIMM'S	
1x9-10	$\$30$
1x9-80	34
1x9-70	35
1x9-60	35
1x8-80	29
1x8-70	29
1x8-60	29^{50}
4x9-60	139
4x9-70	129
4x9-80	120
4x8-70	114
4x8-80	109
256x9-80	10
256x9-70	13

DRAM'S	
1x1-80	$\$3^{99}$
1x1-70	3^{99}
1x1-60	4^{99}
256x4-80	3^{99}
256x4-70	3^{99}
256x4-60	3^{99}
256-70	1^{75}
256-60	1^{85}
4464-80	2^{00}
4464-10	1^{50}

CPU CHIPS	
80386DX-16/20/25/33	CALL
80386SX-16/20	CALL
80486DX-25/33	CALL
80286-8/10 (PLCC)	$\$8/10$
80286-12/16 (PLCC)	6/10
80486SX-20	CALL
80486SX-25	CALL
V-20-8	6^{00}
V-20-10	10
V-30-10	10

AMD	
80386 DX 40	79

MATH CO-PROCESSOR	
INTEL	
8087-5 MHz	$\$30$
8087-2 8 MHz	59
8087-1 10 MHz	99
80287-6 6 MHz	25
80287-8 8 MHz	30
80287XL 12 MHz (Laptop)	69
80287-10 10 MHz	35
80C287-12 MHz	35
80387SX-16	75
80387SX-20	75
80387DX-20 (Tube)	30
80387DX-25	80
80387DX-33	80
WEITEK	
3167-20 20 MHz	$\$89$
3167-25 25 MHz	145
3167-33 33 MHz	325
4167-25 MHz	350
4167-33 MHz	585
CYRIX	
83087-16 16 MHz	$\$69$
83087-20 20 MHz	69
83087-25 25 MHz	69
83087-33 33 MHz	79
83SX87-16 16 MHz	79
83SX87-20 20 MHz	79
IIT	
8C87-8	$\$39$
8C287-10	39
8C287-12	39
287-20	45
8C387-20	79
8C387-25	79
8C387-33	79
AMD	
80C287-10	$\$39$
80C287-12	39
ULSI	
US 83C87 16 MHz SX	$\$59$
US 83C87 20 MHz SX	69
US 83C87 25 MHz	70
US 83C87 33 MHz	70

EPROMS	
2764-200ns	$\$2^{75}$
27C64-200ns	3^{50}
27128-200ns	3^{00}
27128-150ns	5^{00}
27256-200ns	3^{50}
27C256-200ns	3^{75}
27C512-200ns	6^{00}
27C020-150ns	13^{00}

1x4 4x1 STATIC	
514402-80 (1x4) STT,ZIPP	$\$18$
514400-80 (1x4) ZIPP	17
514400-80 (1x4) DIPP	16
514400-80 (1x4) SOJ	15
514100-80 (4x1) SOJ	15

COMPAQ MEMORY	
DeskPro 386/20e, 20, 35e, 25 286e	
1 MB Module	CALL
4 MB Module	CALL
DeskPro 386/20e, 25e	
1-9 MB Exp Brd	CALL
4-12 MB Exp Brd	CALL
DeskPro 386s-16	
1 MB Module	CALL
4 MB Module	CALL
1-9 MB Exp Brd	CALL
4-12 MB Exp Brd	CALL
DeskPro 286N, 386N, 386SX/20	
2 MB Module	CALL
4 MB Module	CALL
DeskPro 386N, 386SX/20	
2 MB Module	CALL
DeskPro 286N, 386N	
0-4 MB Exp Board	CALL
DeskPro 386/33SL, 486/25, 486/33L System Pro	
2 MB Module	CALL
8 MB Module	CALL
32 MB Module	CALL
DeskPro 386/16	
1 MB Kit	CALL
1 MB Exp Brd	CALL
2 MB Exp Brd	CALL
4 MB Kit.	CALL
4 MB Exp Brd	CALL
8 MB Exp Brd	CALL
Portable 386	
1 MB Kit.	CALL
4 MB Exp Brd	CALL
4 MB Exp Brd	CALL
Portable LTE (8086)	
512K Module	CALL
Portable LTE/286	
1 MB Module	CALL
2 MB Module	CALL
4 MB Module	CALL
Portable SLT/286	
1 MB Module	CALL
4 MB Module	CALL
Portable SLT/386	
1 MB Module	CALL
2 MB Module	CALL
4 MB Module	CALL
Portable III	
512K Kit.	CALL
2 MB Kit.	CALL

IBM PS/2 MEMORY	
Mdl 30/386, Exp Brd	
512K Kit	CALL
2 MB Kit	CALL
Mdl 70-061; -121; 55SX; 65SX: Exp Brd	
1 MB Module	CALL
Mdls 70-061: E61: 121: 50Z, 55LS, 55SX: 65SX: P70:	
2 MB Module	CALL
Mdls 70-A21: A61, B21, B61	
2 MB Module	CALL
Mdls 55SX: 65SX: 55LS, 65LS	
4 MB Module	CALL
Mdls 80-111; 121, 311, 321	
2 MB Card	CALL
Mdls 80-A21; A31	
4 MB Card	CALL
Mdls 80-A21: A31	
4 MB Card	CALL
Mdls 90; 95	
2 MB Module	CALL
4 MB Module	CALL
Mdls 50 & 60	
2-8 MB Exp Brd.	CALL
Mdls 70 & 80	
2-8 MB Exp Brd	CALL
2-14 MB Exp Brd	CALL
4-16 MB Exp Brd	CALL
Adapter	
2 MB Module	CALL
PS/1 Home System	
512K Upgrade	CALL
2 MB Upgrade	CALL

TOSHIBA PORTABLE MEMORY		
T1200XE	2 MB Card	CALL
T1600	2 MB Card	CALL
T3100SX	2 MB Card	CALL
	4 MB Card	CALL
T3100e	512K Card	CALL
	2 MB Card	CALL
T3200SX	2 MB Card	CALL
	4 MB Card	CALL
T3200	3 MB Card	CALL
T1000SE; XE	1 MB Card	CALL
T5100	2 MB Card	CALL
T5200: 8500	2 MB Card	CALL

SCCI SANTA CLARA
Computers International

1630 Oakland Rd. • Suite A111 • San Jose, CA 95131
TEL: (408) 441-6100 Fax: (408) 441-0153 • Hours: M-F 8-5:30

PRODUCT SPOTLIGHT

(Europe) adapters for world travelers. A special serial cable connects to the modem port of your Mac. You can feed paper from the rear, or through a slot in the bottom of the printer. I got excellent results printing on inexpensive "computer paper" and standard photocopier paper. Unlike output from an ink jet printer, thermal fusion ink does not bleed or smear if the paper gets wet. The top-quality single-strike ribbon cartridge is rated at 35,000 characters, but the multi-strike cartridge, rated at 100,000 characters, provided sharp, clear text.

WriteMove II is lightweight hardware supported by heavyweight software. The package includes three 800K disks, with a customizable installer. Along with a Chooser-selectable print driver, you get Adobe Type Manager and a set of Type 1 fonts. For bit-mapped graphics, or non-Type 1 fonts, WriteMove II relies on QuickDraw, and the results, at 72dpi, were predictably jaggy. The software creates a Print File Folder on your hard drive, where it temporarily stores each page image before spooling it to the printer. Each page is processed individually; it took about twenty minutes to print an 11-page document. You need System 6.07 or higher. Since most PowerBook users are short on disk space, I did a minimal installation (just one font) with good results.

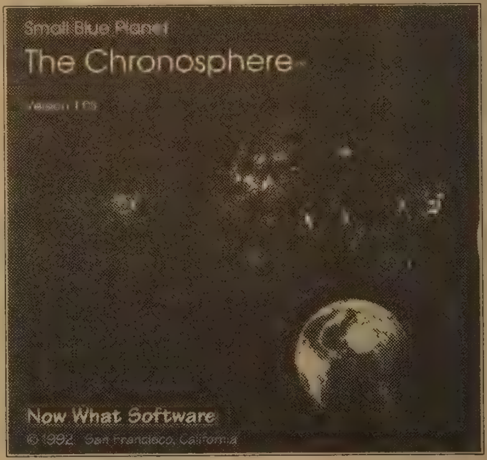
For PowerBook users who need to have access to hardcopy wherever they might be, the WriteMove II is a stylish but pricey solution. However, it's definitely easier than strapping a LaserWriter to your back and carrying a long, long extension cord. (GCC Technologies, Inc., 580 Winter St., Waltham, MA 02154. 1-800-422-7777)

MACINTOSH SOFTWARE

THE CHRONOSPHERE: AN INTERACTIVE WORLD MAP AND TIME GLOBE

Designed By: Eleesa Hager
Published By: Now What Software
For: Macintosh (Requires 4MB of RAM and 8-bit color, System 7 compatible)
List Price: $59.95
Reviewed By: Mike Markowitz

In the swirling chaos of the formation of the Solar System, our world came out slightly crooked. Earth's axis of rotation is tilted 23.5 degrees relative to the plane of our orbit around the sun. If this had not happened, there would be no seasons, and every day and night would be exactly the same length.



Winter mornings would not be any darker or colder than summer mornings, and it would be that much easier to get out of bed.

The Chronosphere is a spectacular little Macintosh application that gives you a global perspective on day and night. A dynamic full-screen world map displays the line of demarcation between day and night; sunset on the leading edge and dawn on the trailing edge. On the Mercator projection, this line looks like a sine wave, so there is also an inset view of the rotating globe, which shows the correct perspective as the straight line of nightfall advances across the face of the planet. You can click anywhere on the globe and the program displays the current time.

Documentation consists of a well-designed and entertaining leaflet. The program has several screens of online Help. There are detailed notes on the sources used to develop the maps, including satellite imagery from the National Oceanic and Atmospheric Administration (NOAA) and Defense Mapping Satellite Program.

The program is installed from a single high-density floppy and takes up 1.67MB on disk. It requires 8-bit color (256 colors). Your system should have at least 4MB of RAM, although the "Get Info..." box says that Chronosphere will run in 2.4MB. It ran perfectly on a Mac LC with no math coprocessor.

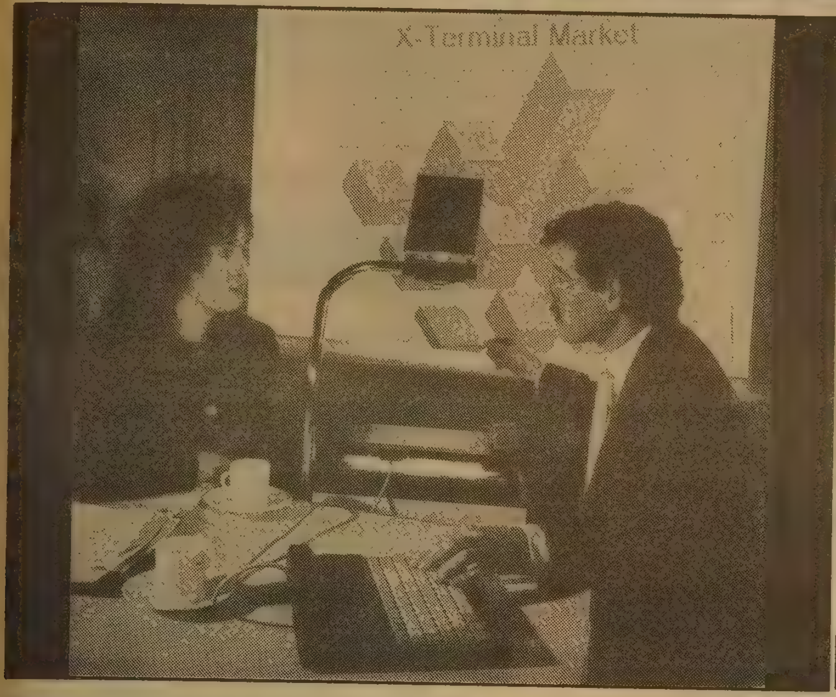
Chronosphere is actually a small standalone module from a much vaster project: Small Blue Planet, a $199 CD-ROM based world atlas. (Now What Software, Inc., 2303 Sacramento, San Francisco, CA 94115. 415/885-1689. Fax: 415/567-0432)

JUST JOKING

By: Ronald L. Smith, Jon Winokur, and others

Continued

EXPERIENCE + QUALITY = WEDGE TECHNOLOGY



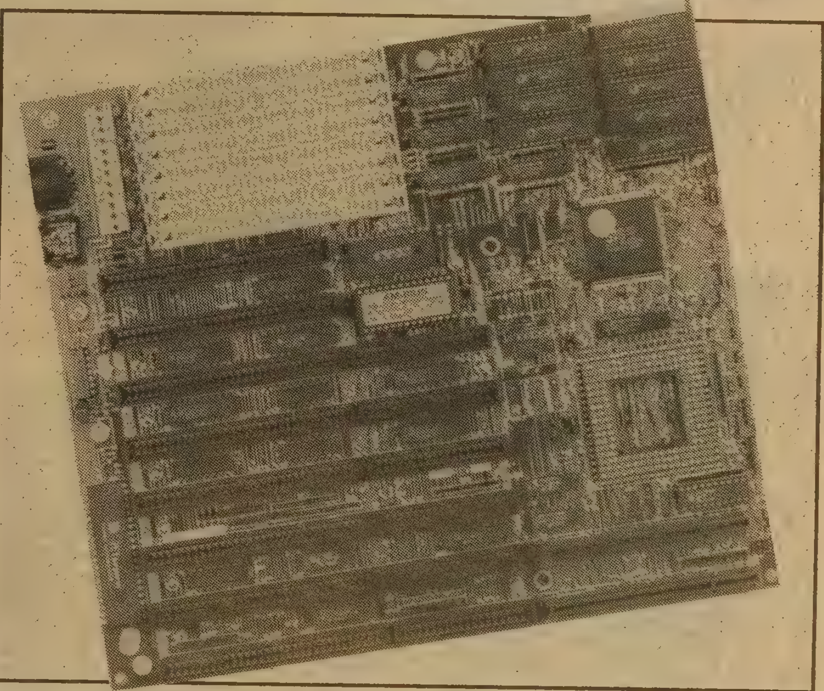
ShowBIZ: THE 1ST NOTEBOOK WITH A 6 FOOT SCREEN

- **Detachable VGA display for use w/OVERHEAD PROJECTOR**
- **Removable 80/120/210MB HDD** and 1.44MB 3.5" FDD
- Intel 80386SL-25MHz with 64K Cache and 387SX/SL Socket
- External VGA adapter allows for two simultaneous displays
- Built-in Trackball, Serial, Parallel, and external Keyboard Ports
- 4MB RAM expandable to 8MB
- 2 Ni-CAD batteries, Automobile Adapter, Deluxe Carrying Bag
- **ONLY 5.7 Lbs (Battery Included)**
- **Upgradable to Color Active Matrix Screen and 486 Module**
- Suspend/Resume Key to prolong battery life
- Internal 2400/9600 Send and Receive Fax/Modem (Optional)
- **Ideal for Training, Sales, Lectures, Demonstrations, and any occassion you will like to impress your audience**

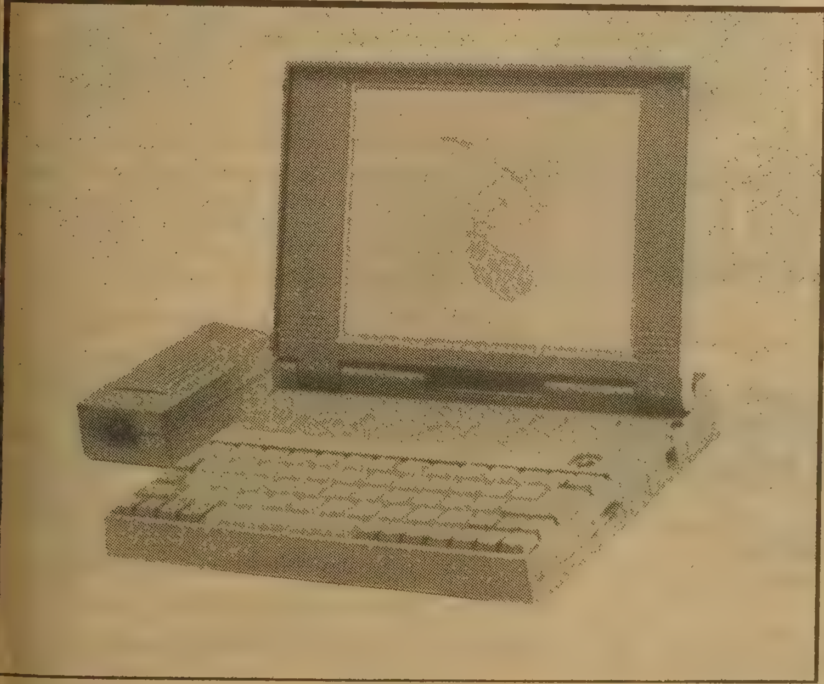
SEE THE BIG PICTURE WITHOUT PAYING BIG BUCKS

THE SYSTEM BOARDS OF UNSURPASSED QUALITY

WT486ELB-33/50/66 EISA Local Bus 256K Cache	CALL
WT486VLB-66 DX2 VESA Local Bus 128K Cache	$849
WT486VLB-50 DX VESA Local Bus 128K Cache	$739
WT486VLB-50 DX2 VESA Local Bus 128K Cache	$615
WT486VLB-33 DX VESA Local Bus 128K Cache	$519
WT386S-40 DX ISA 64K Cache	$198
WT386S-33 DX ISA 64K Cache	$195
WT386U-40 SX ISA	$129
WT386U-33 SX ISA	$119
WT386U-25 SX ISA	$109
Genoa 8500VL VESA Graphics Accelerator	$165
Ultrastor 34F SCSI VESA Local Bus HDD Controller	$289
CPU KOOLER - Keep your HOT 486 chip KOOL	$34.95



CALL FOR COMPLETE SYSTEM SOLUTIONS



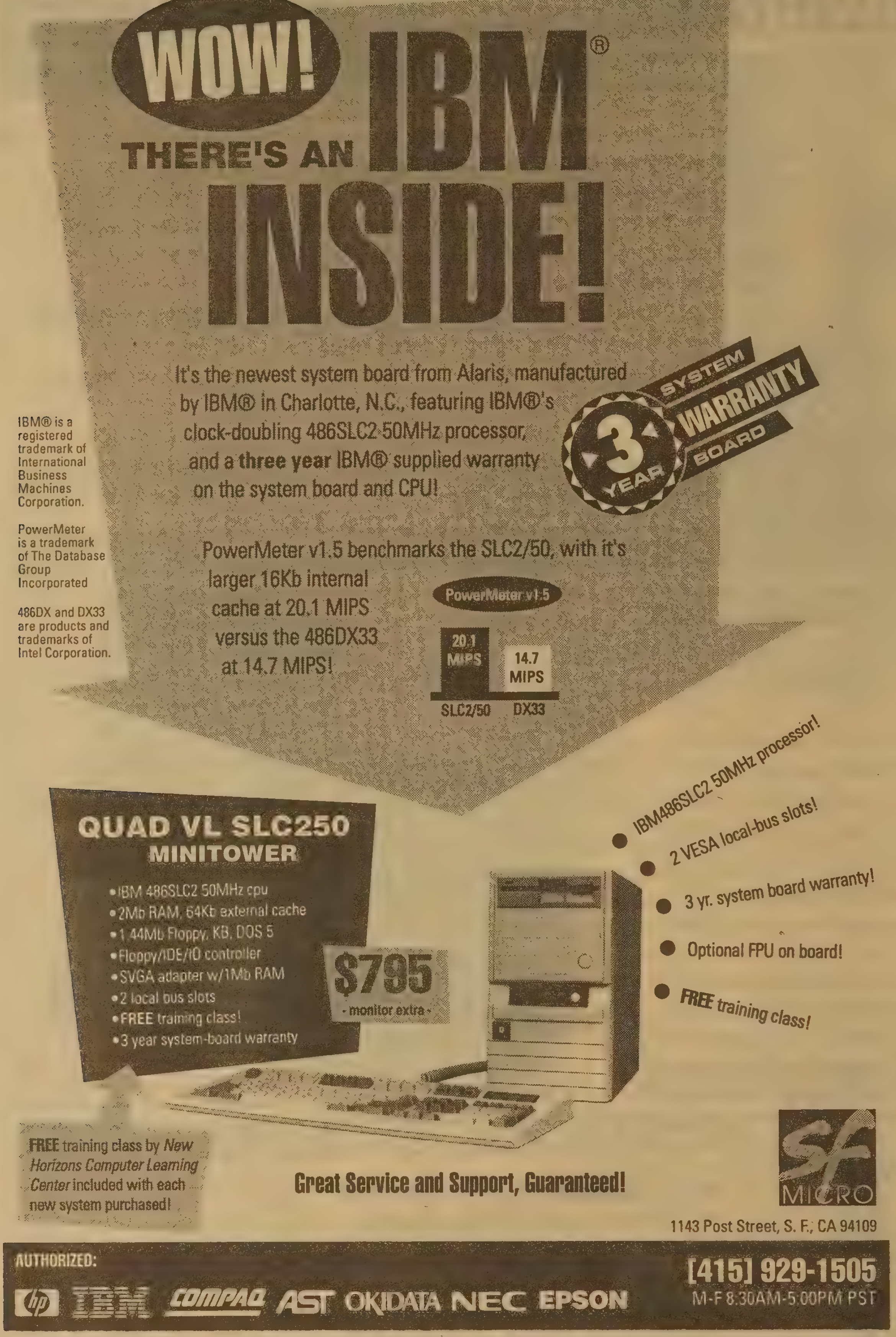
ShowBOOK: THE NOTEBOOK THAT KEEPS GOING & GOING...

- **DUAL BATTERY Compartment**
- **4 Hours battery life per charge**
- **Replace battery without having to turn off the system**
- Intel 386SL-25MHz Notebook w/ 64K Cache & 387SX/SL socket
- **Best design Trackball with 2 buttons**
- **Graphical LCD System Indicator**
- 2MB expandable to 8MB
- 60/80/120MB HDD and 1.44MB 3.5" FDD
- Serial, Parallel, External Simultaneous CRT and K/B port
- **ONLY 5.5 Lbs (Battery Included)**
- Suspend/Resume Key to prolong battery life
- Internal 9600/9600 Send and Receive Fax/Modem (Optional)
- 486 and Color Version also available

SPECIAL: 2MB RAM/60MB HDD ONLY $1,295.00

WEDGE SINCE 1981
TECHNOLOGY, INC.
Your Partner for Success
1657 McCANDLESS DRIVE, MILPITAS, CA 95035

SALES: (408)263-9888
TECH: (408)263-0225
FAX: (408)263-9886


WOW! THERE'S AN IBM® INSIDE!

It's the newest system board from Alaris, manufactured by IBM® in Charlotte, N.C., featuring IBM®'s clock-doubling 486SLC2 50MHz processor, and a **three year** IBM® supplied warranty on the system board and CPU!

3 YEAR SYSTEM WARRANTY BOARD

IBM® is a registered trademark of International Business Machines Corporation.

PowerMeter is a trademark of The Database Group Incorporated

486DX and DX33 are products and trademarks of Intel Corporation.

PowerMeter v1.5 benchmarks the SLC2/50, with it's larger 16Kb internal cache at 20.1 MIPS versus the 486DX33 at 14.7 MIPS!

PowerMeter v1.5

20.1 MIPS SLC2/50
14.7 MIPS DX33

QUAD VL SLC250 MINITOWER

- IBM 486SLC2 50MHz cpu
- 2Mb RAM, 64Kb external cache
- 1.44Mb Floppy, KB, DOS 5
- Floppy/IDE/IO controller
- SVGA adapter w/1Mb RAM
- 2 local bus slots
- FREE training class!
- 3 year system-board warranty

$795 - monitor extra -

- IBM486SLC2 50MHz processor!
- 2 VESA local-bus slots!
- 3 yr. system board warranty!
- Optional FPU on board!
- FREE training class!

FREE training class by *New Horizons Computer Learning Center* included with each new system purchased!

Great Service and Support, Guaranteed!

SF MICRO
1143 Post Street, S. F., CA 94109

AUTHORIZED: hp IBM COMPAQ AST OKIDATA NEC EPSON

[415] 929-1505
M-F 8:30AM-5:00PM PST

ONE MILE FROM LOS ANGELES INTERNATIONAL AIRPORT

Holiday Inn EXPRESS

Our Latest Overnight Success

Located minutes from Business Centers, Aerospace Industries and Governmental Agencies, and right off the I-405 Freeway. You can enjoy the array of services offered:

- Courtesy Airport Transportation
- Free Breakfast Bar
- Free Local Area Calls
- Free Movie & News Channel
- Business Services
- Outdoor Pool
- Meeting Room (5-50 Persons)
- Area Restaurants Deliver Free
- Priority Club Benefits

$58*

Hotel Direct (310) 671-7213 or Fax (310) 671-1804
Toll Free (800) HOLIDAY ask for LAXAI
4922 W. Century Blvd., Inglewood, CA 90304

*MICROTIMES SPECIAL

Published By: Wordstar International
For: Macintosh (1MB, System 6.05 or later)
List Price: $49
Reviewed By: Mike Markowitz

Long, long ago, WordStar was the leading word processor for personal computers. For a few bad years the company fell upon hard times, but recently it has been making a comeback as a publisher of tools for writers. Humor can sometimes be one of the most useful tools in a writer's bag of tricks. Just Joking, a topical database of classic and contemporary American humor, just might fill the bill.

Just Joking is a HyperCard stack of 678K that includes nearly three thousand items in over 250 categories. Each category listing is one big scrolling field. You can select and copy any of the text. You can add your own jokes and topics, and have the program include them in the Index. The package also includes a disk with HyperCard 2.1 for those Mac users who have been in a coma or cryogenic suspension for the past two years. For technical and corporate-political reasons that would be tedious to recount, HyperCard has lost much of its charm as a development environment for Mac software, but it has the great advantage of being universally available, and it runs on even the most frugally configured systems.

The list of topics includes Cats and Dogs but not Computers. Just Joking earns points in my book for having plenty of quotes from the works of P.J. O'Rourke and Fran Lebowitz, whom I consider to be our funniest living writers. It loses points for having only a few one-liners from Stephen Wright and George Carlin, our greatest stand-up comics.

The 10-page user manual is a model of brevity and good design. The simple instructions are also included in an online Help menu item. The box also contained a fake pair of glasses with huge nose, moustache, and bushy eyebrows.

The stack is indexed by topic and author, and you can search for any text string. This makes it rather more useful than a book. A really useful product would be a comprehensive CD-ROM based encyclopedia of humor. Perhaps WordStar ought to consider such a project; it would certainly find buyers. (WordStar International. Inc., 201 Alameda del Prado, PO Box 6113, Novato, CA 94948. 1-800-523-3520)

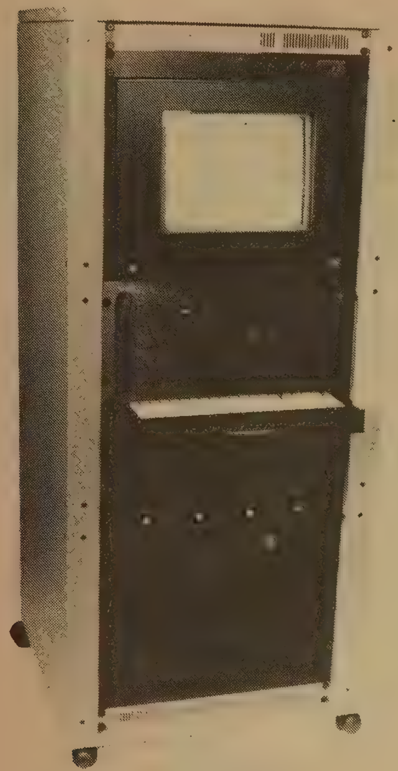
MAGNET

Published By: No Hands Software
List Price: $129.95
Reviewed By: Matthew Leeds

Magnet is billed as "the first intelligent agent-

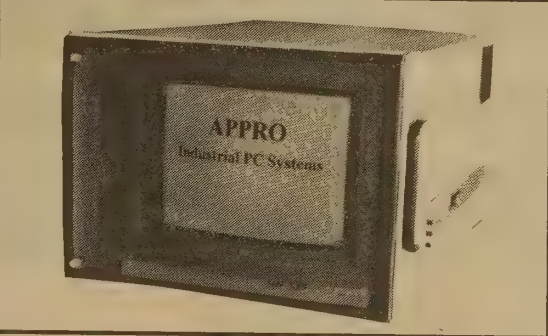
Continued on page 248

APPRO Industrial PC Systems & Server / Disk Array Subsystem



COMPLETE RACKMOUNT SYSTEM

SYSTEM W/9" OR 10" BUILT-IN MONITOR



SYSTEM W/14" BUILT-IN SVGA MONITOR

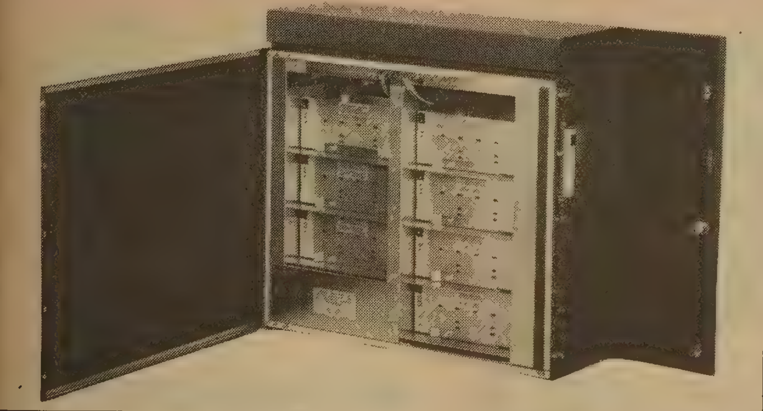
" Your One Stop Source For Industrial Computer Systems"

APPRO Industrial Computer Systems provide high performance, reliability, configuration flexibility and system expansion cability while remaining extremely cost efficient. Select from varity of CPU Card or Motherboard and over 20 different enclosures designed to fulfill all your needs for Rackmount computer systems.

- 20 Different Rackmount Computer Enclosures
- SCSI Expansion Enclosure-Upto 4 Full height
- Monitor Enclosure- For Most 12" or 14" Monitor
- Rackmount Monitor - 9",10",14",17" or 20"
- Rackmount Keybard Drawer - Mini or Full Size
- Rackmount Keyboard
- Single Board Computer (CPU CARD)
  - 286, 386, 486 ISA/EISA
- Passive Backplane - 8,12,14,18 or 20 slots
  - Segmented Backplane Available for upto 6 CPU Card in one enclosure

Call For Free Broucher or Custom Configurations !!!

APPRO DISK ARRAY SUBSYSTEM



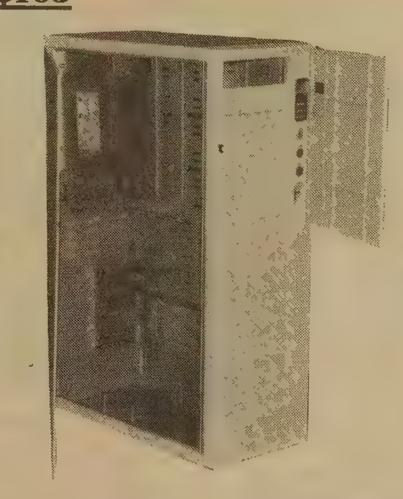
APPRO Disk Array Subsystem offers increase disk drive performance, capacity and protect against failure and unavoidable loss of data. Our Disk Array provides Disk Striping, Mirroring, Spanning as well as Disk Striping with Distributed Parity for Redundancy.

Call For More Informations !!!

- **Raid 0-5**
- **Upto 7 Full Height Drive**
- **Support Upto 4 Host Adapter**

10 DRIVE BAY W/250W PS

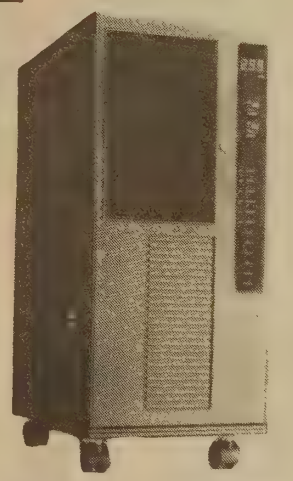
$195



- 2 Cooling Fans
- Both Side Panel Opening
- 300, 400, 450W PS -OPT.
- 8 Slot
- 8.7 x 27.6 x 17.8
- 10 Half Height Bays(6 Ext.)
- Rolling Caster

13 DRIVE BAY W/300W PS

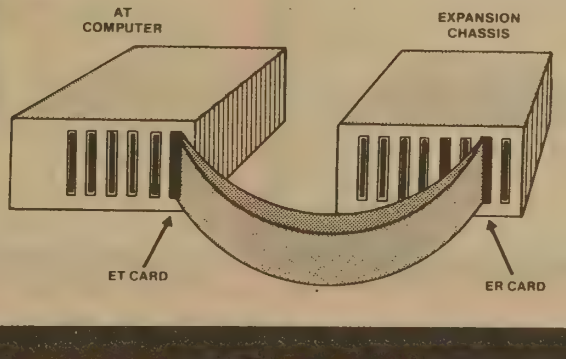
$410



- 3 Cooling Fans
- Both Side Panel Opening
- 400,450W PS - OPT.
- 8 Slot
- 23 x 11 x 17
- 13 Half Height Bays(9 Ext.)
- Rolling Caster
- Locking Front & Side Door

Do You Need More Slots In Your Computer ??

low you can expand your PC-AT system without timing or noise problems nd without time-consuming system reconfiguration with the new TRC-AT active Expansion Bus Interconnect kit from APPRO nternaitonal.



- No need to add drivers or modify software
- No Address Restrictions
  Put disk drive, video controllers and other computer resources into open slots in yourexpansion chassis
- No Initializing software - Just Plug In

ETRC-AT KIT W/4Ft. CABLE
8 SLOT BACKPLANE
EXPANSION CHASSIS W/200W PS
$490.00

TERMS & CONDITIONS
- All returns require RMA Number
- All other returns subject to 15% restocking fee.
- 1 Year Parts and Labor Warranty
- Government, School PO's Welcome
- No surcharge on VISA or MASTER Card
- Not responsible for errors in typos

408-732-6091
FAX: 408-732-6095

APPRO International, Inc
3687 Enochs Street
Santa Clara, CA 95051

HI-TECH USA

Milpitas
Phone: (408) 262-8688
Fax: (408) 262-8772

San Carlos
Phone: (415) 508-8688
Fax: (415) 508-0383

SUPER SALE

486DX2-66/128K EISA	$1,558
486DX-50/128K EISA	$1,458
486DX2-50/128K EISA	$1,438
486DX-33/128K EISA	$1,328
486DX2-66/64K ISA	$1,428
486DX-50/64K ISA	$1,328
486DX2-50/64K ISA	$1,298

- Motherboard w/CPU
- 4MB RAM 70NS
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 130MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .28DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

Non-Interlaced Monitor	Add $30
Viewsonic 6E Monitor	Add $75
1MB SVGA Card	Add $20
170MB Hard Drive	Add $30
200MB Hard Drive	Add $90
340 MB Hard Drive	Add $220

SUPER SALE

486DX2-66 LOCAL BUS	$1,458
486DX-50 LOCAL BUS	$1,358
486DX2-50 LOCAL BUS	$1,338
486DX-33 LOCAL BUS	$1,208
486DX-33/64K ISA	$1,188
486DLC-33/64K ISA	$1,088
486SX-33/64K ISA	$1,108

- Motherboard with CPU
- 4MB RAM 70NS
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 130MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .28DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

Non-Interlaced Monitor	Add $30
1MB SVGA Card	Add $20
Local Bus (1MB)	Add $80
Local Bus S3 (1MB)	Add $120
200MB Hard Drive	Add $90
340MB Hard Drive	Add $220

SUPER SALE

486DLC-33/64K ISA	$1,018
486SX-25/64K ISA	$988
386-40/64K CACHE	$858
386-33/64K CACHE	$848
386DX-25	$844
386SX-33	$748
386SX-25	$742

- Motherboard w/CPU
- 4MB RAM 70NS (2MB for 386SX)
- 1.2MB and 1.44MB FDD
- IDE Controller w/2S/1P/1G
- 80MB 16MS Hard Drive
- 101-Key Enhanced Keyboard
- 1024•768 .39DPI 14" Color Mon.
- 512K SVGA Card
- Enhanced Case w/Power Supply

Options

1MB SVGA Card	Add $20
.28DPI SVGA Monitor	Add $40
Viewsonic 6E Monitor	Add $115
40MB Hard Drive	Less $40
130MB Hard Drive	Add $60
200 MB Hard Drive	Add $150

NOTEBOOK COMPUTERS

486DX-33/4MB RAM/120MB HD	$2,478
486SLC-25/2MB RAM/80MB HD	$1,398
386SX-25/4MB RAM/120MB HD	$1,248
386SX-25/4MB RAM/80MB HD	$1,148
386SX-25/2MB RAM/80MB HD	$1,098

Features

- 1.44MB Floppy Drive
- VGA 640x480 Resolution
- DOS 5.0
- Serial & Parallel Port
- Please Call for Details

TERMS AND CONDITIONS

1. One year parts and labor warranty on systems.
2. Knowledgeable technical support engineers in service.
3. Prices and availability subject to change w/o notice.
4. Shipping, insurance and COD charges are extra and non-refundable. Prices reflect cash discounts.
5. Return shipping must be insured, prepaid and bearing an RMA# on the shipping label.
6. Defective items replaced or repaired at our discretion.
7. No responsible for typos.
8. All returns subject to 15% restocking fee and cover only Hi-Tech USA brand computers, excludes peripherals and software. No refunds after 30 days.
9. Superior reputation for service, quality and value.
10. Purchase orders are welcomed and subject to approval.

Why do smart customers keep buying from HI-TECH-USA? Simply because we deliver the best values.

Call and join our smart customer list: ABC, ADAPTEC, ALLIED SIGNAL, AMD, AT&T, CIRRUS LOGIC, DATAQUEST, FLORIDA STATE UNIVERSITY, GENERAL ELECTRIC, IIT, INTEL, LAWRENCE LAB, MAXTOR, NASA, NATIONAL SEMICONDUCTOR, PG&E, QUANTUM CORP, SEAGATE TECHNOLOGY, SIERRA SEMICONDUCTOR, STANFORD UNIVERSITY, SUN MICROSYSTEMS, U.C. BERKELEY, WESTERN DIGITAL, YALE UNIVERSITY, and many, many more.

SYSTEM	M/B + CPU	BASIC SYSTEM	BASIC SYS +40MB HDD + 12" MONO & MGP CARD	BASIC SYS + 40MB HDD + VGA CARD & MONITOR	BASIC SYS + 40MB HDD + SVGA CARD & MONITOR	BASIC SYS +80MB HDD + SVGA CARD & MONITOR	BASIC SYS +120MB HDD + SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +130MB HDD +SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +170MB HDD +SVGA CARD & MONITOR	BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +200MB HDD +SVGA CARD & MONITOR
486DX2-66/128C EISA	$758	$928	$1,152	$1,252	$1,292	$1,338	$1,384	$1,538	$1,568	$1,628
486DX-50/128C EISA	658	828	1,052	1,152	1,192	1,238	1,284	1,438	1,468	1,528
486DX2-50/128C EISA	638	808	1,032	1,132	1,172	1,218	1,264	1,418	1,448	1,508
486DX-33/128C EISA	528	698	922	1,022	1,062	1,108	1,154	1,308	1,338	1,398
486DX2-66C ISA	628	798	1022	1,122	1,162	1,208	1,254	1,408	1,438	1,498
486DX-50C ISA	538	708	932	1,032	1,072	1,118	1,164	1,318	1,348	1,408
486DX2-50C ISA	498	668	892	992	1,032	1,078	1,124	1,278	1,308	1,368
486-33/64C ISA	272	438	662	762	802	848	894	1,048	1,078	1,138
486SX-33C ISA	298	458	682	782	822	868	914	1,068	1,098	1,158
486SX-25C ISA	238	398	622	722	762	808	854	1,008	1,038	1,098
386DX-40/64C	150	310	534	634	674	720	766	920	950	1,010
386DX-33/64C	146	306	530	630	670	716	762	916	946	1,006
386DX-25	134	294	518	618	658	704	750	904	934	994
386SX-33	90	252	476	576	616	662	708	862	892	952
386SX-25	84	244	468	568	608	654	700	854	884	944
286-20	64	230	454	554	594	640	686	840	870	930

BASIC SYSTEM CONFIGURATION:
Motherboard & CPU, 1MB (512KB for 286 systems) memory installed, 1:1 2HD/2FD controller, 1.2MB or 1.44MB Floppy Drive, Internal Clock/Calendar, Enhance Case with Power Supply, and 101-Key Enhanced Keyboard.

VIDEO OPTIONS

14" Mono monitor	90
14" VGA Mono Monitor	106
14" VGA monitor w/16-bit VGA card	200
14" SVGA monitor with 512k card	240
VGA-256K (800•600, 16-Bit)	26
VGA-512K (1024•768, 16-Bit)	36
1M SVGA card (1024•768•256)	54
Window Accelerator w/1MB	78
Diamond Speed Star 24X w/ Hi-Color	146
Diamond Stealth 24 w/1MB	154
Diamond Stealth 24 VLB w/1MB	174
Orchid IIs/Hi-Color	116
Orchid Fahrenheit VA801 W/1MB	148
Orchid Fahrenheit VLB w/1MB	174
ATI Graphic Ultra w/ Mouse	244
ATI Graphic Ultra Plus w/2MB	294
ATI Graphic Ultra Pro w/2MB	394
ATI Graphic Ultra Pro VLB w/2MB	418
Nanao F550i (17", 1280•1024, 0.28)	1,010
Nanao F560i (17", 1280•1024, 0.26)	1,678
NEC 3FGX / 4FG	608 / 714
NEC 5FG OEM / Original	1,288 / 1,388
MAG 15F (15", 1280•1024, 0.28)	548
MAG 17F (17", 1280•1024, 0.26)	1,028
Sony CPD 1304S / 1430	532 / 588
Sony CPD 1604S	942
HITACHI CM-2085M+ (20")	1,286
HITACHI CM-2187M (21")	2,188
Standard VGA (640•480) Monitor 0.51	174
Super VGA (1024•768) Monitor 0.39	204
Super VGA (1024•768) Monitor 0.28	244
Super VGA Non-Interlaced Monitor 0.28	268
Viewsoic 4 E	278
Viewsoic 5 E	378
Viewsoic 5 +	478
Viewsonic 6 E	318
Viewsonic 6 FS	528
Viewsonic 7	958
Viewsonic 8	1,508

HARD / FLOPPY DRIVE ADAPTERS

IDE 2FD/2HD Cache Controller	$108
IDE 2FD/2HD with 2S/1P/1G	14
MFM 2FD/2HD	36
Ultrastor ESDI w/32K Cache (ISA)	150
Adaptec SCSI 1542KB w/Kit (ISA)	230
Adaptec SCSI 1742 (EISA)	408
Bustek SCSI (EISA)	280
Ultrastor SCSI 24F (EISA)	420

NEW HARD DRIVES

40mb/28ms or 52mb/19ms (IDE)	$124 / 148
80mb/18ms or 100mb/18ms (IDE)	170 / 198
120mb/16ms (IDE)	212
130mb/16ms (IDE)	218
170mb/16ms (IDE)	246
200mb/16ms or 240mb/15ms (IDE)	298 / 338
200mb/16ms (SCSI)	388
340mb/15ms or 500mb/13ms (IDE)	438 / 768
1.2GB/13ms (SCSI)	1,188

PRINTERS

Citizen 200GX (9-Pin)	$158
Citizen GSX-230 (24-Pin) Quiet	248
Citizen GSX-240 (24-Pin) Quiet	318
Citizen GSX-145 (24-Pin)	388
Color Option for Citizen Printer	48 / 68
Panasonic KX-P1123	208
Panasonic KX-P1124i / 1624	288 / 364

MATH COPROCESSORS

Intel 80287-10	$42
Intel 387SX-25 / 20 / 16	82
Intel 387DX-33 / 25 /20 / 16	86
CYRIX 387DX-40 / 33	90 / 68
CYRIX 387SX-25 / 16	68 / 68

KEYBOARDS

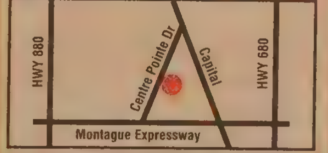
101 Enhanced Keyboard	$20
Maxiswitch / Keytronics	30 / 33
Focus 2001 / 9000	38 / 62
Omnikey 101 / 102 / Ultra	64 / 64 / 86
MaxiPro II (124 key programmable)	78

MISCELLANEOUS

2400 Modem (w/9600 Send Fax)	$31
Fax Modem (9600 Fax, 2400 Modem)	51
Fax Modem (14,400 Fax, 14,400 Modem)	178
3-button Mouse	11
Mini Tower Case w/200W PS	52
Desktop AT Case w/200W PS	55
Medium Tower Case w/230W PS	84
Full Tower Case w/250W PS	114
Logitech Mouseman Serial/Bus	57 / 59
Logitech Trackman	74
Colorado Tape Backup DJ-10 (120mb)	158
Colorado Tape Backup DJ-20 (250mb)	198
ATI Sound Card Pro	108
Creative Labs Sound Blaster	84
Sound Blaster Pro w/MIDI Kit	176
Creative Labs CD-ROM Upgrade Kit	446
SONY CD-ROM CDU031 / 541	278 / 408
16-Bit Ethernet Card COAX/10Base-T	65

HOURS: Monday - Friday: 8am to 6pm
Saturday: 10am to 4pm

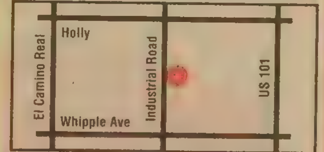
SOUTH BAY



Phone (408) 262-8688
1558 & 1562 Centre Pointe Drive
Milpitas, CA 95035 Fax (408) 262-8772

HI-TECH USA

PENINSULA



Phone (415) 508-8688
981B Industrial Road
San Carlos, CA 94070 Fax (415) 508-0383

Quality Leader in the East Bay

We Use Name Brand Components

MICRONICS
COMPUTERS INC.

486-33 VESA LOCAL BUS w/FAHRENHEIT 1280 VESA BUS 240MB Hard Disk Super VGA System

- One Additional Available VESA LV Slot
- Built-In VESA Local Bus 2FD/2HD IDE Controller Card
- 8K Internal, 256K External Cache
- 4MB RAM expandable to 64MB onboard
- 240MB IDE Hard Drive Fast
- 14" Super VGA color Monitor (Non-Interlaced 1024x768) .28 dp
- Fahrenheit VESA Local Bus (Windows) Accelerator SVGA Card w/1MB VRAM
- 1.2MB & 1.44MB Floppy Drive
- 101-Key Keyboard
- Full Tower Case w/300W power supply
- DOS 5.0 & Windows 3.1
- 3-Button High Resolution Mouse

SPECIAL 2400/9600 Baud Int. Fax/Modem Included

$2,095

486-50MHz System	**$2,245**
486-DX2 66MHz System	**$2,329**

MICRONICS
COMPUTERS INC.

486DX/33 SYSTEM SUPER SALE

- 4MB RAM Expandable to 64MB on Board
- 64K Cache (Expandable to 256K)
- 120MB 15ms IDE Hard Drive
- 14" Super VGA Color Monitor (Non-interlaced 1024x768) .28 dp
- 1MB SVGA (1024x768) Display Card
- 16-Bit IDE Controller
- 2S, 1P, 1G Ports
- 1.2MB and 1.44MB Floppy Drives
- 8 Expansion Slots
- 101 Enhanced Keyboard
- Built-in Math Coprocessor
- Clock/Calendar w/Battery Backup
- MS DOS 5.0 & Windows 3.1
- 3 Button High-Resolution Mouse
- Mid-Tower Case

SPECIAL 2400/9600 Baud Int. Fax/Modem Included

$1,599!!!

Limited Quantity Available

ECI 486DX2/66MHz 256K Cache

ISA $1,859

ECI 486DX/50MHz 256K Cache

ISA $1,749

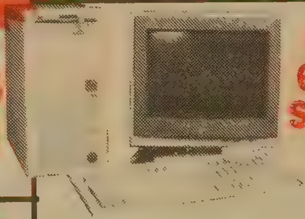
213MB Super VGA System

- 8K Internal, 256K external cache
- 4MB RAM expandable to 128MB on board
- 213MB IDE HARD DRIVE
- 14" Super VGA color monitor (Non-Interlaced 1024x768) .28 dp
- 1MB 16bit VGA (1024x768) card
- 2HD/FD controller w/2S, 1P, 1G ports
- 1.2MB and 1.44MB floppy drives
- 101 Enhanced keyboard
- Built-in math coprocessor
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Vertical case with power supply
- MS DOS 5.0 & Windows 3.1
- 3 Button High-Resolution Mouse

SPECIAL 2400/9600 Baud Int. Fax/Modem Included

OPTIONS:

-340MB 12ms Hard Disk	**ADD $169**
-17" Viewsonic 7 Monitor 1280x1024 .28dp	**ADD $679**



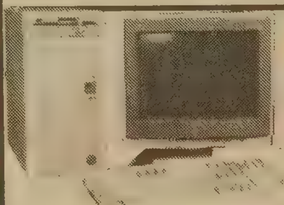
ECI 386DX/40MHz 64K Cache 120MB Super VGA System

$1,095

SALE

- 64K cache on board
- 4MB RAM expandable to 32MB on board
- 120MB IDE HARD DRIVE
- 14" Super VGA color monitor (1024x768) .28dp
- 1MB 16bit VGA (1024x768) card
- 2HD/FD controller
- 1.2MB and 1.44MB floppy drive
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced keyboard
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Includes shadow ram for fast bios access
- Mini Vertical case with 200W power supply
- 3 Button High-Resolution mouse
- MS DOS 5.0

SPECIAL 2400/9600 Baud Int. Fax/Modem Included



ECI 386SX-33 85MB Super VGA System

$869

- 2MB RAM expandable to 16MB
- 85MB Hard Drive
- 14" Super VGA Color Monitor (1024x768) .28dp
- 512K 16bit VGA (1024x768) Card
- Math Coprocessor Socket
- 1.2MB and 1.44MB Floppy Drive
- 2HD/FD controller w/2S, 1P, 1G ports
- 101 Enhanced Keyboard
- Mini Vertical Case with 200W power supply
- 3 Button High-Resolution mouse
- MS DOS 5.0

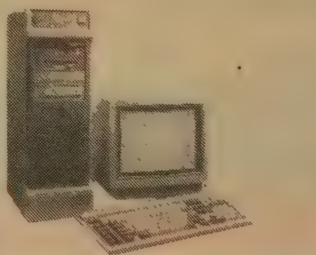
OPTIONS

-120MB 17ms Hard Disk	**ADD $59**
-200MB 15ms Hard Disk	**ADD $129**
-RAM Upgrade	**ADD $35 per MB**

5 YEAR LABOR 1 YEAR PARTS WARRANTY ON ALL SYSTEMS

Complete Computer Repair Service and System Upgrading.

Our Service Staff is trained to handle all jobs, large or small. We repair all makes and models.



SPECIAL SALE

486DX-33 System 128K Cache 213MB Super VGA Monitor

- 8K Internal, 128K external cache
- 4MB RAM expandable to 128MB onboard
- 213MB IDE HARD DRIVE
- 14" Super VGA color Monitor (Non-Interlaced 1024x768) .28 dp
- 1MB 16bit VGA (1024x768) card
- 2HD/FD controller w/2S, 1P, 1G ports
- 1.2MB and 1.44MB floppy drives
- 101 Enhanced keyboard
- Built-in math coprocessor
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Vertical case with power supply
- MS DOS 5.0, & MS Windows 3.1
- 3 Button High-Resolution Mouse

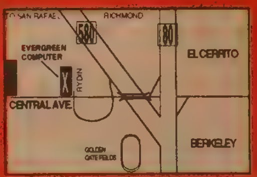
SPECIAL 2400/9600 Baud Int. Fax/Modem Included

$1,599

EVERGREEN

COMPUTER INTERNATIONAL, INC.
2700 Rydin Road #C, Richmond, CA 94804

(510) 526-8667 FAX (510) 526-1447



Serving You for Over 8 Years!

Hard Disks • MultiMedia • Monitors

MAXTOR

130MB 15ms IDE 7120A	$235
213MB 15ms IDE 7213A	309
340MB 13ms IDE LVT-340	575
535MB 13ms SCSI/IDE LXT-535A	889/929
1.2GB SCSI	1225
1.7GB SCSI	1499

FUJITSU

525MB SCSI 12ms	$849
1.2GB SCSI 14ms	1279

CONNER

170MB 17ms IDE CP30174E	$249
120MB 19ms IDE 30104	229
213MB 12ms IDE CP30204F	319

WESTERN DIGITAL

85MB 17ms IDE	$185
120MB 19ms IDE	235
213MB 15ms IDE	309
340MB 12ms IDE	489

QUANTUM

122MB 256K Cache 9ms IDE	$269
240MB 256K Cache 9ms IDE	339
425MB 11ms IDE	869

INTERFACE CARDS

AT I/O card 2S/1P/G	$16
Mono graphic/printer	19
XT high density floppy cont	35
XT hard disk cont	49
Serial/printer/game card	16/16/16
MFM 1:1 HD/FD cont	49
IDE dual HD/FD cont	16
IDE w/IO 2S, 1P, 1G, Card	25
SCSI 1:1 HD/FD cont	85
VGA Trident 1024x768 w/1MB	69
VGA T9000 1024x768 512K	55
STB 4-COM, 4 serial, 16 bit w/16554 support COM 1-8, IRQ 2,3,4,5,10,11,12,15	109

FotoMan™ $499

Digital Camera for DOS Systems

Fast and Easy to Operate!

Perfect for all your DTP needs!

- Take up to 32 pictures from 3 ft. to infinity
- Enhance photos w/FotoTouch™ Image Editing
- Save images in TIFF, ESP, PCX, & BMP Format
- Built-in auto flash for great indoor picture

LOGITECH SCANNERS

LOGITECH

ScanMan Model 256 & Ansel ™
Hand-Held Scanner

• Serial Mouseman 400dpi	$69
• Bus Mouseman 400dpi	69
• Cordless Mouseman 400dpi	109
• Serial TRACKMAN NEW	89
• Bus TRACKMAN 320dpi	79
• First Mouse	39

ScanMan 32 $139
ScanMan 256 $259 w/Catchword PRO OCR $299
ScanMan Hand-Held Color Scanner $559

SOUND BLASTER

MULTIMEDIA UPGRADE KIT

Kit includes the new matching CD ROM player and Sound Blaster Pro with midi kit and all the following software:

- MS Windows
- MS Bookshelf
- World Atlas
- AM Heritage Dictionary
- Almanac/Thesaurus
- MS Word for Windows
- Mathematica
- US Atlas/Automap
- Macromind Action
- Sherlock Holmes

Internal $499

CREATIVE
CREATIVE LABS, INC

SOUND BLASTER

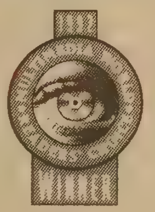
Digitized voice input/output
Decompression hardware **$99**

SOUND BLASTER PRO BASIC $159

SOUND BLASTER PRO

CD-Quality stereo sound
CD-ROM interface **$189**

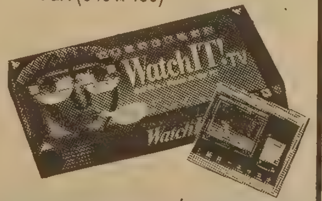
WatchIT! TV



This system lets DOS and Windows users watch TV right on their PC Monitors. View an on-screen, full-color video window (via antenna, cable, VCR, or video camera hook-ups) while simultaneously running their standard computer applications.

- Live TV in a Window
- DOS/Windows 3.0/3.1
- Full 1/4 or 1/16 Size Window
- Framegrabbing
- Cable/Antenna Ready
- On-Screen Remote Control
- Installs in Minutes
- VCR and Camera Inputs
- VGA (640 x 480)

$329



Future Domain SCSI DNK Kits

New Product

TMC-1680 DNK $275

16-Bit AT SCSI-2 Fast SCSI adapter with (4) floppy support
Complete with Software & Documentation
Comes with all software drivers

- MS-DOS Extension & SCSI Disk Set-up Utility w/Manual
- CD-ROM Driver with MS-DOS Extensions w/Manual
- Novell Netware 286-386 Driver w/Manual
- OS/2 Driver w/Manual • SCO, XENIX Disk & Tape Driver w/Manual

VIDEO BOARDS

ATI TECHNOLOGIES

Graphics/Ultra+ 1MB/2MB ISA, DRAM 1280x768 Int., 1024x768 Non-Int. 65K Colors Accelerated	$299/359
GRAPH/Ultrapro 1MB/2MB ISA, VRAM 1280x1024 Non-Int., 1024x768 65K Colors Accelerated	$449/519

DIAMOND

Stealth™ 24	$199
Stealth™ 24 VLB	210
SpeedStar 24X 24-bit True w/1MB Color	189

ORCHID TECHNOLOGY

Fahrenheit 1280 1280x1024 w/1MB	$210
ProDesigner IIs 1024x768 w/1MB	119

ViewSonic™ MONITORS

1	14"	640x480 .39	$23
4e	14"	1024x768 .25 NI	30
5+	14"	1024x768 .26 NI	51
5+	14"	1024x768 .25 NI	41
6e	14"	1024x768 .28 NI	349
6FS	15"	1024x768 .28 NI	
7	17"	1280x1024 .28 NI	995
8	20"	1280x1024 .31 NI	1569

MAG INNOVISION

MV1448	14" 1024x768 .28 Non-Interlaced	$459
MX14H	14" 1280x1024 .28 Non-Interlaced	569
MX15F	15" 1280x1024 .28 NI FST	699
MX17F	17" 1280x1024 .26 NI FST	1389

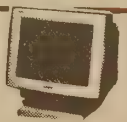
NEC

15"	3FGX	1024x768	28mm	$649
15"	4FG	1024x768	28mm	749
17"	5FG	1280x1024	28mm	1299
21"	6FG	1280x1024	28mm	2349

SONY®

14"	1304S	1024x768	25mm	$579
17"	CPD-1604S	1024x768	25mm	999
20"	GDM1936	1280x1024	20mm	2279

STANDARD TECHNOLOGIES



Super VGA Monitors

14" .28dp Color UVGA Maximum Resolution 1024x768 Non-Interlaced #428-UVGA	$329
14" .28dp Color SVGA Maximum Resolution 1024x768 Interlaced #428-SVGA	$289
14" .39dp Color SVGA Maximum Resolution 1024x768 Interlaced #439-SVGA	$249

Monochrome Monitors

14" .39dp Flat Screen Monochrome Maximum Resolution 1024x768 Interlaced #400-MVGA	$149
9" Flat Screen Monochrome VGA Maximum Resolution 1024x768 Interlaced #090-MVGA	$149

CENTRAL POINT PC TOOLS

Essential Utilities for the PC Professional

$89

VERSION 7.1
The Perfect Companion for DOS 5 & Windows

[illegible] MON-FRI [illegible] SAT [illegible]
[illegible] subject to change [illegible]
[illegible] responsible for typographical errors
[illegible]

VISA

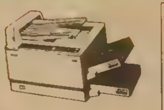
EVERGREEN COMPUTERS INT. (510) 526-8667

GREAT SERVICE
GREAT PRICES

1000's of High Quality Products!

PRINTERS

Panasonic KX-P4455
PostScript Laser



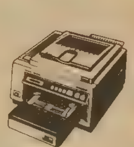
Accessories for 4455/4450i	
Legal Tray	$69
Envelope Tray	.69
Toner	39
Drum Unit	149
Developer	119

- •2MB RAM exp to 4MB
- •Two 250 sheet paper trays
- •39 PostScript fonts •11PPM

$1749

KX-P4450i $1095

KX-P4430
Laser Printer



NEW!

$888

- •1MB RAM exp to 5MB
- •PCL-5 Scalable
- •300 dpi resolution •5PPM
- •200 sheet paper capacity

KX-P4410
Laser Printer

$639

5ppm!

- •512K RAM exp. to 4.5MB
- •200 sheet paper capacity
- •300 dpi resolution • 5PPM

Panasonic Toner Cartridges

KX-P450	KX-P4450	$39
KX-P451	KX-P4420	39
KX-P453	KX-P4410 KX-P4430	39

KX-P2123
Quiet 24-pin
Color Capable
43.5 dBA!
$239

KX-P2180
Quiet 9-pin
Color Capable
45 dBA
$169

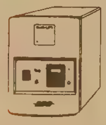
Color Option.....$49

KX-P2624	24-pin, 300cps, Free ATM	$379
KX-P1624	24-pin, 192cps, Wide Carriage	339
KX-P1124i	24-pin, 300cps, 100cps LQ	279
KX-P2124	NEW	319

APC
American Power Conversion

Backup Power Supplies at Great Prices!

BK250B 200-200VA; back-up power for 386SX, 286SX, 286, XT's and AT's	$109
BK450 400-450VA; back-up power for Tower 386, 486 systems, servers; with network interface	$209
BK600 Back-up power for heavily configured 386, 486 systems; CAD/CAM	$279
AP900 Smart-Ups 900 900 VA 286, 386, 486 Servers Multiple systems, Longer runtime	$639



Call for other models!

ARTISOFT
LANtastic
NETWORKING

AE-2 Starter Kit	$485	AE-2 Ethernet Adapter	$199
AE-3 Starter Kit	565	AE-3 Ethernet Adapter	235
2Mbps Starter Kit	355	2Mbps Adapter	145
10 Base T Starter Kit	.595	AE-2/T 16 Bit 10BT	210
LANtastic AI Software	.70	AE-1/T 8 Bit 10BT	135
Ethernet Terminator	6		
T-Connector	7		

NEC
LC-95 Printer
$1,389

- • Adobe PostScript &HP II Emulation
- • 6 PPM Laser Printer
- • 300 dpi
- • Apple Talk, Parallel and Serial Interface
- • 2MB of Memory
- • 35 Scalable Typefaces, 14HP Bitmapped Fonts
- • Universal Paper Tray

Toner Cartridges

#20-055LL Silentwriter 2 Model 90/95 **$189**

NEC P6200 **$429**
24 PIN, 300 cps, auto paper load
20k buffer, 80 columns

NEC P6300 **$629**
Wide carriage version of P6200

CITIZEN PRINTERS

GSX-230 **$249**
- • 24-pin printer
- • Up to 270cps, 90cps LQ
- • 8 Built-in fonts

GSX-145
- • 132 column printer
- • Color Option Only $69

$359

GSX-240
- • 24-pin printer
- • Up to 300cps, 99cps LQ
- • 13 Built-in fonts, including 2 scalable

$299

Laser Printer MEMORY!!

	1MB	2MB	3MB	4MB
HPII/IID	N/A	$125	$160	$180
HPIIP/III/IIID/IIIP	N/A	125	160	180
Panasonic KX-P4420	N/A	139	175	189
IBM 4019	109	149	309	N/A
Epson EPL-6000	140	155	190	N/A
Epson EPL-7000	N/A	90	140	N/A
Okidata 400/800	100	150	N/A	N/A
Brother HL-4	130	180	230	280

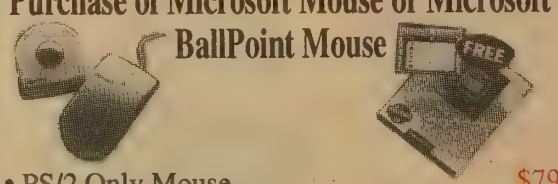
DIGITIZERS

Summagraphics

Summasketch III **NEW**
12"x12" 4 Button Cursor
$319

Summasketch III NEW
12"x18" Pro, 4 Button Cursor
$569

Free Trivial Pursuit® Daily Planner with Purchase of Microsoft Mouse or Microsoft BallPoint Mouse



• PS/2 Only Mouse	$79
• Serial Only Mouse	79
• PS/2 Only BallPoint	99

FELLOWES

Anti-Glare Filter **$49**
Optical quality nylon mesh anti-glare filter for 14/15" montitors.

PANAMAX.
POWER PROTECTION
Six (6) Outlet Surge Suppressor **$59**
6 foot power cord, master on/off switch, resettable circuit breaker

PRINTERS

HEWLETT PACKARD
Authorized Dealer

LaserJet 4 w/Toner 8ppm, 600x600 dpi, 2MB	$1369
LaserJet 3SI w/Toner 7ppm, Network Compatible, 1MB	3289
LaserJet 3D w/Toner 8ppm, Duplex printing, 1MB	2279
LaserJet 3P w/Toner 4ppm, 1MB	999
LaserJet 2P Plus w/Toner 4ppm, 512K	779
DeskJet 550C 300dpi, Color Ink Jet, 1 Color/1Black Cartridge	709

HP TONER CARTRIDGES

HP 92275A HP IIP, IIP+, IIIP	$79
HP 92295A HP IID, II, III, IVD	89
HP 92291A HP ILsi	119
HP 92298A HP4	109

Laser Printer Toner Cartridges

Canon Series II, EPS, SX	$130
Canon Series I, EP, CX, R34	130
Canon Series IV, EPL	95
Epson 6000 Laser Printer	24
Epson Action Laser II	99
Okidata LaserLine 6	19
Okidata OL400/800 Series/OL810	29

TAPE BACKUPS

COLORADO MEMORY SYSTEMS INC.

JUMBO + Tape Backup

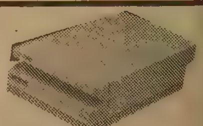
DJ-10 (120MB) QIC-49	$169
DJ-20 (250MB) QIC-80	225
AB-11 External tape port	45
CABLE (2 Floppies & tape back up)	9
FC-10 Controller	95
KE-10 Ext Kit	99
TX-15 Controller w/data compression	195
Unix/Xenix driver for DJ-10, 20	99

INTRODUCING:

Tralker™
Parallel Printer Port
External Tape Backup System

120MB External	$359
250MB External	$429

TAMARACK

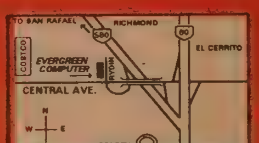


Professional Flatbed Color Scanner 600dpi, 24 bit Optional SKT Slide Scanner

ArtiScan™ from Tamarack gives you state-of-the-art resolution and impeccable image quality, 600 dpi, 24 bit per pixel (16 million colors and 256 gray levels). Supports both the PC and the Macintosh. SCSI interface for fast operation.

ArtiScan 6000C 600DPI w/ Photostyler Software	$1049
ArtiScan 8000C 800DPI w/ Photostyler Software	1349

EVERGREEN COMPUTER INTERNATIONAL, INC.
2700 Rydin Road #C, Richmond, CA 94804
(510) 526-8667 FAX (510) 526-1447



Largest Selection in the East Bay

Huge Selection of Notebooks & Accessories

TEXAS INSTRUMENTS

$1695/1929

TravelMate™ WinSLC™/25

486SLC performance at 386SL prices!

- TI486SLC 25MHz processor
- 640x480 VGA display with 64 gray scales
- 2MB RAM, expandable to 6MB
- 60MB or 80MB hard disk drive
- Pre-installed Windows™ 3.1 and MS-DOS® 5.0
- TravelPoint™ Pointing Device
- Long Battery Life

UltraLite® SL/25C

- i386SL-25MHz 64K Cache
- 2MB RAM exp to 10MB
- 80MB Hard Drive
- 9.5" Color VGA Display
- High-speed enhanced parallel port
- Small 9"x11.5" footprint
- Weight 7.5 lbs

$2459 **NEC**

NEC UltraLite® SL/20P

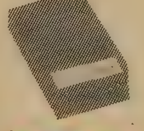
- 386SL 20MHz Processor with 16KB Cache
- Optional 387™SX Coprocessor Socket
- 4MB of RAM expandable to 8MB
- 80MB (19ms) or 120MB (17ms) 2.5" Hard Disk Drive
- 1.44MB 3.5" Floppy Drive
- 640x480 VGA Graphics Display
- Pre-installed MS-DOS® 5.0 and Windows™ 3.1 with Pen Extensions
- 6.8 lbs.

Call for Best Price

Huge Selection of Notebooks & Accessories
Laptop and Notebook Accessories

- Memory
- Carrying Cases
- A/C Adapters
- Expansion Boxes
- Numeric Keypads
- External Battery Charger

"Comm-panion"



96/24 FAX/MODEM
The True Pocket-Size Fax Modem
5 Year Warranty

- AC Adaptor Included
- Extended Battery Life
- Actual Size 0.8"x2.3"x4.0"
- DOS, Windows or Mac Compatible

$99

FAX/MODEMS

EVEREX Fax/Modem
2400 Modem/9600 Fax Int/Ext $139/189

US ROBOTICS Modem
9600 Baud/Com port 1-4
PC internal version of the CV32
Com port Serial V.32 compatible,
MNP class 1-5 dial-up & leased line applications

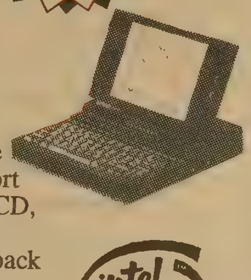
SALE

9600 Baud Int $169

Unbelievable Price - High Quality

NEW

LEO PhD Notebook



- 4MB RAM expandable to16MB
- 120MB Hard Drive
- 1.44MB 3.5" Floppy Drive
- 2 Serial ports, 1 Parallel port
- Backlit black-and-white LCD, 640x480 VGA resolution
- 6.38 lbs including battery pack

Includes AC adapter/recharger, power cord, user guide, utility disk, carry bag

LEO 486SX-25 $2049
LEO 486DX-33 $2299

STEP UP TO TOSHIBA QUALITY & VALUE

T1850

Introducing the Satellite™ T1850, one of three unique new products from the leader in portable computing!

- 25MHz i386™ SX processor
- 4MB RAM exp. to 12MB
- VGA display with 64 gray scales
- 80MB Hard Drive
- 1.44MB Floppy Drive

Satellite
T1850

$1599

In Touch with Tomorrow
TOSHIBA

COLORFUL VALUE!

T1850C **THE NEW T1850C**

Introducing the Satellite™ T1850C, one of three unique new products from the leader in portable computing!

- 25MHz i386™ SX processor
- 4MB RAM exp. to 12MB
- Ultra-STN LCD with 256 colors from a palette of 262,144
- Bright VGA display
- 80MB Hard Drive
- 1.44MB Floppy Drive

Satellite
T1850C

$2229

In Touch with Tomorrow
TOSHIBA

FAX/MODEM

V.32 Bis/ V.42 Bis 57,600 BPS Throughput

STANDARD COMMUNICATION FEATURES

- Easy to use Menu-Driven Fax and Data Communications Software
- Supports International CCITT and Bell Standards
- Auto-Install Utility with External COM1-COM4 select
- Full Duplex operation with Automatic Adaptive Equalization
- Speaker Volume Control and Dual RJ11 Jacks for Phone
- V.42 Bis Compression and MNP-5 error control for higher speeds
- FCC Class B & Part 68 Certified
- 5 Year Warranty backed by our Exclusive Support program

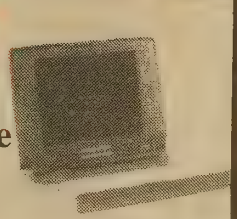
High Speed 14,400 BPS Internal Modem

Made in USA - 5 Year Warranty

Hi-Per 96/144Vi

$249

COMPAQ LTE Lite



Notebook Demo Sale

- 386SX-20
- 2MB RAM
- 60MB Hard Disk
- Carrying Case

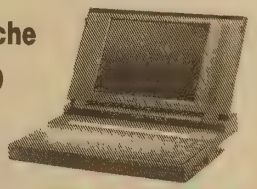
COMPAQ

$1549

TEMPO Carrier SL/25

386SL-25MHz w/64K Cache

4MB RAM / 80MB HDD



EVEREX

Removable Hard Drive & Battery
Multilevel Power Management

$1899

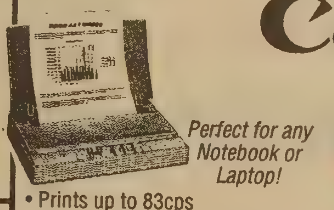
- 386SL-25MHz • 64K Cache • 4MB RAM exp. to 20MB • Removable hard drive & battery
- 3.5", 1.44 Floppy Drive • MS-DOS • Windows • Built-in Trackball • Carrying case

VANDA 386SX NOTEBOOK

- 386SX-20 (Intel processor)
- 2MB standard expandable to 4MB
- VGA Display with 32 grey scales
- 80MB Hard Drive • 1.44MB Floppy Drive
- 2 Serial, 1 Parallel ports
- NiCAD battery with AC adapter included
- Weight 6.2 lbs. • Deluxe Carrying Case
- FCC Class B Approved • FAX
- Includes DOS 5.0 • Modem

$1195

Canon



Perfect for any Notebook or Laptop!

Portable Bubble Jet

BJ-10ex

- Prints up to 83cps
- Text & graphics up to 360 dpi
- Uses plain paper & transparencies
- 1-year warranty

$269

BJ-200 Laser Quality... At an InkJet Price

- Prints up to 4ppm
- 7 resident fonts
- 100-page sheet feeder
- Holds up to 10 envelopes

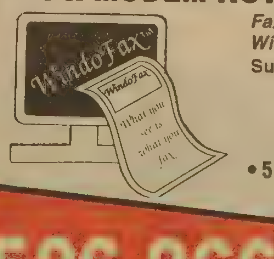
$359

FAX/MODEMS

perfect Datafax

96/24 INT.

Turn your PC into a Communications Center!
FAX & MODEM NOW INCLUDED!


WindoFax
WindoFax
What you see is what you fax.

Fax directly from any Windows™ application program
Supports Windows 3.0 or higher

$79

- 5 Year Warranty

HOURS: MON-FRI 9-6 SAT 10-5
Prices subject to change W/O notice
Not responsible for typographical errors
Prices based on cash prices

VISA

EVERGREEN COMPUTERS INT. (510) 526-8667

WE WILL MATCH OR BEAT ANY PRICE!

CASE & POWER SUPPLY

MINI TOWER (200W) CASE	$52
MED TOWER/6 SLOTS/LED	78
FULL TOWER CASE/235W	108
AT BABY CASE w/PS	55/65
XT 150W/200W PS	31/36
AT 200W/230W PS	40/45
Maxiswitch KB 101	35
Adaptec 1542/1522 SCSI H/F/C	115/205
Microsoft Serial Mouse	69
Logitech Track Ball	69

FLOPPY & HARD DRIVES

Teac 1.2/1.44 FD	$53/48
Conner 80 MB IDE	215
Conner 200 MB SCSI	385
Conner 120 MB 17ms	265
Maxtor 130 MB, 16ms	265
Maxtor 7213, 200 MB IDE	375
Toshiba 3401B SCSI, 200ms CD-ROM	499
CD-ROM Creative Labs 380ms	219
Sound Blaster Pro w/Midi Pkg	159
Sound Blaster Pro Basic	139
Video Blaster	275
Sound Blaster Pro 16 Bit	225
Sony CD Pkg 7 Titles	115

PRICE WARS!

CD-ROM SALE!

Creative Lab CD-ROM
Midi Kits
Sound Blaster Pro
& CD Programs (7 & 3)
FROM $465

MOTHERBOARDS

386SX-33/25 w/CPU	$107/99
386-33 MHz, 64K Cache w/o CPU	115
386-40 MHz, 64K Cache w/CPU	185
486DX-50, 128K/256K Cache w/o CPU	128/165
486DX-33/50, 256K, Local Bus w/Tseng Lab 32 Bit SVGA 1 MB	295/305
486DX-33/50, 256K, VESA Local BUS	175/185

MEMORY UPGRADES

1MBx9-80/70 SIMM	$32
4MBx9-80 SIMM	129
CPU & DRAM	LOWEST
HP LASERJET II, IIP, III, IID. MEMORY UPGRADE 1/2/4 Meg Kit	80/119/199

MONITOR & VGA CARD

Trident SVGA 1MB	$69
VESA Local Bus VGA 1MB	145
Orchid Pro-Designer IIS 1MB/Fahrenheit	125/175
Puretek 14" non-interlace VESA 72Hz 1024x768 0.28mm SVGA	330
Viewsonic 6E/5E SVGA	$LOWEST
SVGA 1024x768 MGC .28mm	275
SVGA 1024x768 MGC .39mm	215
VGA 640x480 IBM	210
15" SVGA 1280x1024 .28mm, VESA	425

FAX/MODEM CARD

Tape Back-Up 120 MB	$185
Zoltrix 96/24 fax modem	68
Zoltrix 14.4 Fax Modem	209
2400 Baud Int/Ext Modem	48/72

BOZEMAN
MARKETING GROUP, INC.
16 Corning Ave., Suite 120, Milpitas, CA 95035
(Inside United Center on S. Main St. & Corning)
Mon-Sat 10am-6pm
Tel: (408) 263-3158
Fax: 263-6763

PRODUCT SPOTLIGHT

Continued from page 240

based software." While limited in scope, it does fulfill its goal of automating many file handling tasks. Magnet consists of an extension and an application. Although Magnet requires System 7, installation is easy; either run the installer or drag the extension to the System folder and the application anywhere.

Magnet's name comes from the "agents" it creates to control its functions. A Magnet agent is essentially a set of instructions that identifies the types of files that will be found, when to find them, and what to do with them. Files can be searched for by name, type, location, contents, date modified, date created, label, and size. Within each category a variety of filters allows you to narrow and specify the characteristics you're looking for. While there is a great range of filters included, there is no mechanism for adding additional ones. For example, you can't search by creator flag unless you've got the application that uses Magnet's set of creator flags.

You can schedule your Magnets to run (or trigger as the manual refers to their activation) by a date and time or by the mounting of a volume, when your computer has been idle for a period of time, or at shutdown. Once an agent is triggered, it can do one of three things: create an alias of a file, copy a file, or move a file. It can't extract text from a file or change a file's creator flag. I'd like to see it be able to rename or delete files as well as see support for AppleEvents added.

Magnet can do a lot of other things. It can back up specified files when you want them backed up, for example, when you mount a SyQuest cartridge. It can synchronize the files on your PowerBook and your desktop Mac. It can log onto a network drive (or remote network using AppleTalk Remote Access) and retrieve files. It can hunt through a network drive and find all the files that haven't changed in a specific period of time (letting a network manager find files ripe for archiving and deleting).

Magnet is a good first-generation product for creating automated events on the Macintosh. It cleverly avoids the scripting environment of Frontier, making it accessible to a greater audience; but in the process it looses some flexibility and expandability. If No Hands Software continues to add new features to Magnet, it could become an indispensable addition to everyone's collection of utility software. (No Hands Software, Inc., PO Box 60297, Palo Alto, CA 94306. 415/321-7340)

WRAPTURES ONE

Published By: Form and Function
List Price: $129.00
Reviewed By: Matthew Leeds

Wraptures is a collection of 120 seamless textures in PICT format, designed for use as image maps in Mac 3-D rendering applications, and as background tiles in multimedia, animation, presentation, and video applications. The image files can be used as texture and bump maps in applications like 3D Works and InfiniD. They also work well in applications that support RenderMan.

The disc contains a color Browser utility that can preview each texture file and display a sample of it mapped to several different objects. Each file is designed to wrap seamlessly around objects or when used as tiles. All of the images are stored at screen resolutions (72dpi) in both 32-bit color and optimized 8-bit color palettes. Image sizes range from 64 x 64 to 1024 x 512 pixels. The Browser utility can not only preview image files, but it can copy them from the disc to any folder on a hard drive. Under System 7, each file displays a color icon representative of the texture contained within. Also included are a series of PICT animations of time-elapsed cloudscapes and water reflections. (Form and Function, 1595 17th Ave., San Francisco, CA 94122. 415/664-4010)

BOOK REVIEW

THE AREXX COOKBOOK

Written By: Merrill Callaway
Published By: Whitestone
List Price: $29.95, $39.90 with companion disk, $54.90 (both disks)
Reviewed By: Douglas J. Nakakihara

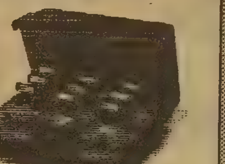
AREXX is a programming language similar in some respects to BASIC. However, what sets it apart from other languages is its ability to simultaneously control multiple programs. In a sense, it can act as a common macro language. Beginning with AmigaDOS 2.0, AREXX is now a standard part of the OS.

In a standard tutorial fashion, the *AREXX Cookbook* gradually builds upon the concepts learned in each successive lesson. Example code with detailed explanations is generously provided. Callaway goes to great lengths in his explanations to help you truly understand AREXX. Extensive cross-referencing to the Commodore AmigaDOS

Continued

HSC's Spring Specials... Look what we found for you!

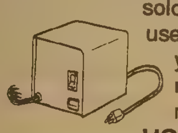
Flip & File your Media...with Ease!



Finally...a media storage system that is as flexible as you are! This plastic case has removable dividers that can be configured to store 5.25" or 3.5" floppies, CD's, data cartridges, optical disks, Bernoulli & Syquest cartridges, or any combination. When your needs change, so can the dividers! Stackable box measures 9" x 12" x 6.5"

HSC# 13581 **$9.95**

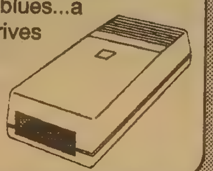
Triple Supply, Ready to go!



If you are doing any electronic prototyping or circuit development with a solderless breadboard, this would be a great power supply to use. Since it is a linear design, and not a switching power supply, you can use light loads without worrying about loss of regulation. 5 VDC @ 10 A, ± 12 VDC @ 1 A each. Already mounted in case with fuse, switch and line cord. 5" x 5" x 7.5"

HSC# 13805 **$19.95**

Budget Disk Drive Case/Power Supply



Here is the answer to your expensive disk drive enclosure blues...a large manufacturer bought these units to remove the drives and had leftover cases. What to do? Sell them to you! Plastic case and bracket with beefy linear power supply will work with any half-height 5.25" drive (needs drive power connector, IEC line cord, data cable exit hole).

HSC# 13850 **$19.95**

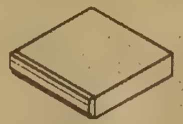
Let HSC be your SCSI Hardware Headquarters!

HSC stocks an extensive collection of interconnection and accessory hardware for your SCSI installation needs. From Drive Enclosures to Cables, make HSC your SCSI Source!

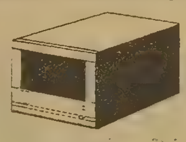
External Drive Enclosures

All drive enclosures feature fan-cooled power supplies, SCSI address switches and ICN50 connector knockouts. Style A includes ribbon cable, the others will require at least APF38006 below.

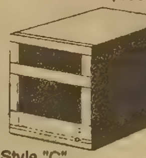
A.	SKHD1	55W P.S.,	Room for single drive, fits under a Mac!	10" x 10" x 2.25"	$99.95
B.	SLHD2	60W P.S.,	Front opening for two half-height drives.	7.5" x 12" x 6.5"	$119.95
C.	SLHD3	60W P.S.,	Front openings for three half height drives	7.5" x 12 x 9"	$139.95



Style "A"



Style "B"



Style "C"

Cables

MCN11015	SCSI Dual Drive Ribbon Cable (3 x IDS50) 2 ft.	$3.95
APF38006	SCSI Drive Case Ribbon Cable (ICN50S to IDS50 to ICN50S) 2 ft.	$8.95
APS31052	SCSI to Mac (ICN50M to DB25M) 3 ft.	$11.95
APS31001	SCSI Cable, ICN50M to ICN50M 3 ft.	$14.95
APS31003	SCSI Cable, ICN50M to ICN50M 6 ft.	$16.95
SCN44002	SCSI-2 Cable, ICN50 Male to Half-pitch 50 Male, 6 ft.	$33.95
SCN44023	SCSI-2 Cable, Half-pitch 50 Male to Half-pitch 50 Male, 6 ft.	$41.95
SCN44032	SCSI-2 Cable, Half-pitch 50 Male to right angle Half-pitch 50 Male, 6 ft.	$39.95
SDB44011	SCSI-2 Cable, DB50 Male to Half-pitch 50 Male, 6 ft.	$35.95

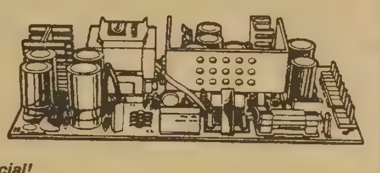
Accessories

APJ42001	SCSI Address Switch with ribbon cable, 6-pin IDS connector	$5.95
APJ42005B	SCSI Drive Mounting kit, fits Mac II, Cables included	$9.95
APJ42006B	SCSI Drive Mounting kit, fits Mac SE, SE30, Cables included	$10.95

Small Power Supplies, Big Savings!

These tiny switching power supplies are small in size only! They are big on performance and value, and the ones with 5 and 12 Volt outputs are perfect for use with 3.5" or smaller hard disk drives. Similar to illustration at right.

A. 2" x 6.25" x 1.25"	Skynet, used, tested good. 110/220VAC input, 5VDC @ 2A, 12VDC @ 1.5A output.	HSC #12758	$17.50 ea	
B. 3" x 5" x 1.5"	Skynet, new. 110/220VAC input, 12VDC @ 2A, -12VDC @ .3A output.	HSC #12378	$19.95 ea	
C. 2.75" x 5.125" x 1.25"	Skynet, new. 110/220VAC input, 5VDC @ 2A, 12VDC @ 1A, -12VDC @.25A output.	HSC #12799	$22.50 ea	
D. 3" x 5" x 1.5"	Protek, new. 110/220VAC input, 5VDC @ 3A, 12VDC @ 2A, -12VDC @ .3A output.	HSC #13728	$14.95 ea	*Special!*

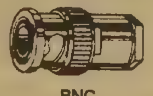


So Many Reasons why HSC should be your Node for Network Connections...

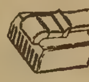
Pre-Assembled Cables

"Thin" Ethernet:

RGN91001B	BNC to BNC, RG58A/U Coaxial Cable, 50Ω	3 ft.	$2.95
RGN91001C	BNC to BNC, RG58A/U Coaxial Cable, 50Ω	6 ft.	$3.95
RGN91001	BNC to BNC, RG58A/U Coaxial Cable, 50Ω	10 ft.	$7.95
RGN91002A	BNC to BNC, RG58A/U Coaxial Cable, 50Ω	25 ft.	$9.95
RGN91011	BNC to BNC, RG58A/U Coaxial Cable, 50Ω	50 ft.	$12.49
10 Base T:			
DATA-2006	RJ45 to RJ45, 4 Twisted Pair (10BaseT, Level 4)	6 ft.	$3.39
DATA-2010	RJ45 to RJ45, 4 Twisted Pair (10BaseT, Level 4)	10 ft.	$3.99



BNC



RJ45

Cable

3130	RG58 Coaxial Cable, Stranded center conductor, 50Ω	$.12/ft	$51.00/500'
3170	RG58 Coaxial Cable, Solid center conductor, 50Ω	$.12/ft	$51.00/500'
3710	RG62 Coaxial Cable, 93Ω	$.19/ft	$80.75/500'
3780	RG213 Coaxial Cable, 50Ω	$.45/ft	$191.25/500'
C0740	24AWG, 1 foil-shielded pair	$.11/ft	$47.00/500'
C0601	24AWG, 2 foil-shielded pairs	$.15/ft	$63.50/500'
C0602	24AWG, 3 foil-shielded pairs	$.18/ft	$75.50/500'
CTJ90151	Telephone cable, 4 conductor (flat)	$.05/ft	$29.95/1000'
CTJ90165	Telephone cable, 6 conductor (flat)	$.06/ft	$39.95/1000'
CTJ90176	Telephone cable, 8 conductor (flat)	$.12/ft	$59.95/1000'

Tools

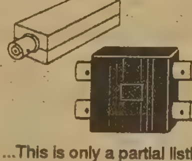
WS15	Coax Stripper for RG58/59	$14.95
WS20	Telephone (RJ11) 4 Cond. Crimper, Economy Model	$7.95
WS23	Telephone (RJ11) 2-4-6 Cond. Crimper	$15.95
WS24	Telephone (RJ11) 8 Cond. Crimper	$21.95
WS27	Deluxe RG58/59 Coax Connector Crimper	$16.95
WS28	Deluxe Ratcheting RG58/59 Coax Connector Crimper	$24.99

Connectors, Adaptors

943B	BNC Female for RG58, Crimp-on	$1.49
945B	BNC Female for RG58, Clamp type	$1.49
977B	BNC Female for RG58, Twist-on	$1.69
974B	BNC Male for RG58, Crimp-on	$1.36
954NPB	BNC Male for RG58, Clamp type	$1.40
991B	BNC Male for RG58, Twist-on	$1.49
959NPB	BNC Adaptor, Female to Female	$2.69
976B	BNC Adaptor, Male to Male	$1.98
956NPB	BNC Adaptor, one Male to two Females "Tee"	$2.69
981NPB	BNC Adaptor, all Female "Tee"	$2.69
TIW-05	Twinax Adaptor, one Male to two Females "Tee"	$7.95
TIW-07	Twinax Adaptor, all Female "Tee"	$7.95
TEC1B	Modular telephone plug, 4 conductor	$.06
TEC3B	Modular telephone plug, 6 conductor	$.08
TEC4B	Modular telephone plug, 8 conductor	$.16
TEC34B	Telephone Modular Coupler, 4 Cond.	$.99
CON50003R	Modular telephone plug for round cable, 6 conductor	$.10
CON50007R	Modular telephone plug for round cable, 8 conductor	$.18

Terminators

971LB	BNC Terminator, 50Ω	$1.95
971B	BNC Terminator, 75Ω	$1.95
971CB	BNC Terminator, 93Ω	$1.95
TTM-100	Twinax Terminator, 100Ω	$4.95



Baluns, Hubs

3018-1A34	BNC Male to RJ11	$8.95
3018-1B34	BNC Female to RJ11	$8.95
3019-1C34	Twinax Male to RJ11	$9.95
3019-1D34	Twinax Female to RJ11	$9.95
LN-515	Passive Hub, four ports, Arcnet compatible	$9.95

...This is only a partial listing of the connectors, cables and tools that the network installer and administrator will find useful. Check with HSC for the missing link that will complete your network!

Halted specialties co. HSC Electronic Supply

Toll Free (Orders Only) 1-800-4 HALTED (1-800-442-5833)

Retail Stores:

3500 Ryder St., Santa Clara, CA 95051 (408) 732-1573
4837 Amber Ln., Sacramento, CA 95841 (916) 338-2545
6819 Redwood Dr., Cotati, CA 94931 (707) 792-2277

Now Available...New HSC Catalog!!

Months in the making... our new 48-page catalog listing thousands of electronic essentials! Send $1.00 (or free with order) and thanks for waiting patiently!

Terms: Some quantities limited; all items subject to prior sale. **Minimum order: $10.00 plus shipping.** Orders under $20.00 subject to $2.00 handling fee, in addition to shipping. All orders shipped FOB Santa Clara, CA (this means you pay freight!) by UPS Surface (no P.O. Boxes) unless otherwise specified, in which case prevailing carrier rate plus $5.00 handling fee applies. Prepaid orders that don't include shipping charges will be shipped freight COD. There is a $4.00 UPS charge added to shipping charges for COD shipments. If you have questions about your order, please call Customer Service at (408) 732-1854 M-F 9AM to 5PM PST.

Single Source.

- VIDEO CASSETTE MASS DUPLICATION
- WORLD TELEVISION STANDARDS CONVERSION
- MACROVISION® VIDEO ANTI-PIRACY PROTECTION
- FILM-TO-TAPE TRANSFER VIA RANK CINTEL
- OPTICAL LASERDISC RECORDING (RLV)
- PACKAGING AND DISTRIBUTION, INCLUDING LABELING AND SHRINK WRAP
- FULFILLMENT SERVICES

DINER+ALLIED
FILM & VIDEO SERVICES

San Francisco – 620 3rd Street, San Francisco, CA 94107-1902 • Tel: (415) 777-1700 • FAX: (415) 957-1842
Detroit – 7375 Woodward Avenue, Detroit, MI 48202-3121 • Tel: (313) 871-2222 • FAX: (313) 871-5907
Chicago – 1322 W. Belmont Avenue, Chicago, IL 60657-3285 • Tel: (312) 348-0373 • FAX: (312) 348-5669
Dallas – 6305 N. O'Connor Road, Suite 111, Bldg. Four, Irving, TX 75039-3510 • Tel: (214) 869-0100 • FAX: (214) 869-2117
Orlando – 4364 35th Street, Orlando, FL 32811-6502 • Tel: (407) 649-0008 • FAX: (407) 649-9005
Washington, DC – 5840 Kirby Road, Clinton, MD 20735-1362 • Tel: (301) 297-7600 • FAX: (301) 297-4250
Knoxville – 370 J.D. Yarnell Industrial Parkway, Clinton, TN 37716-0460 • Tel: (615) 457-7772 • FAX: (615) 457-7799

HAVE QUESTIONS...CALL THE TECHNICAL EXPERTS

TRUST US . . . WE'RE DIFFERENT

Apple ZENITH IBM COMPAQ Macintosh
EPSON EVEREX TOSHIBA HEWLETT PACKARD ALR

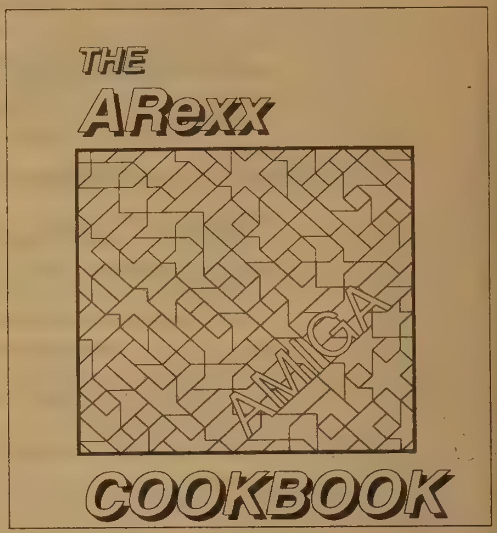
Vertical Integration Specialists

GIGABYTES

Quality Service & Upgrades • On-Site & In-Shop Service

® Registered trademarks are by the respective companies

TEL: (510) 440-8032 FAX: (510) 440-9099



2.0 manual and the AREXX documentation by William Hawes, the author of AREXX, appears throughout the book, including the index. I highly recommend having at least one of these other books handy because the *Cookbook* does not have a command reference section.

Two supplemental disks are available at additional charge. One is a companion disk to the book, which includes all of the example programs. The other disk contains desktop publishing related utilities and program code, including ones to build an index and table of contents.

Despite the back cover's declaration that it "makes AREXX easy," be aware that AREXX is still a complex programming language and not for the casual student. However, Callaway has done a wonderful job at making it as easy as possible. While the *AREXX Cookbook* was written for the beginner, experienced programmers will still find some essential information unique to AREXX in this book. (Whitestone, 511-A Girard Blvd. SE, Albuquerque, NM 87106. 505/268-0678)

JAMSA'S 1001 DOS & PC TIPS

Written By: Kris Jamsa
Published By: Osborne/McGraw-Hill (ISBN 0-07-881821-4)
List Price: $39.95
Reviewed By: Lenny Bailes

Kris Jamsa has been well known for more than five years for his voluminous reader's manuals on MS-DOS. Here, rather than a formal introduction to DOS, we have 1001 tips for DOS users, laid out under a series of different categories. This book was written for users with a basic knowledge of DOS who are looking for the secrets and tips not generally discussed in entry-level books.

Readers of this book will learn how to select a 50-line screen mode without ANSI.SYS, how to use the DOS batch language to construct their own error messages, and gain

Continued

YOUR CONNECTIVITY SPECIALIST

CALL FOR FREE ON-SITE CONSULTATION

CALL FOR NETWORK UPGRADES

NETWORKING

SALES
INSTALLATION
ON-SITE SERVICE

NETWORK SOLUTION

NETWORK SYSTEMS

5 USER	$7995
10 USER	12,990
20 USER	19,960
50 USER	CALL
100 USER	CALL
250 USER	CALL

WORKSTATION 386-DX33 W/64K CACHE

- 4 MB RAM 70ns
- VGA 256K Card
- 14" VGA Monitor
- 101 Keyboard
- 1.2 or 1.44 Floppy
- Desktop/Mini Tower
- Network Cable
- 2S/1P/1 Game Ports
- 16-Bit Ethernet Card

CALL FOR INFORMATION

SERVER/WORKSTATION 486-50 W/256K CACHE

- 16 MB RAM 60ns
- 500 MB Hard Disk
- 16-Bit Ethernet Card
- 14" Mono Monitor
- Mono Card
- 101 Keyboard
- 2S/1P/1 Game Ports
- 250 MB Tape Back-Up
- Novell Installed

CALL FOR INFORMATION

NOVELL NETWORK SOFTWARE

NOVELL 2.2		NOVELL 3.11	
5 User	$549	5 User	$629
10 User	1149	10 User	1429
50 User	1949	20 User	1998

CALL FOR 50-250 USERS LOW PRICES!!
CALL FOR NOVELL UPGRADES 3.11 W/4.0 OPTIONS

NETWORKING PRODUCTS

8 Bit EN1000	$89	UPS 400W	$199
16 Bit EN2000	109	UPS 600W	269
10 Base T 16 Bit	119	UPS 900W	599
10 Base T 8 Bit	109	Tape Back-up 120MB	229

CALL FOR OTHER NETWORK PRODUCTS

LIFETIME WARRANTY ON LABOR & 2 YEARS PARTS WARRANTY

386-33 w/64K CACHE

- 4 MB RAM 70ns
- 120 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Mini-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 5.0

$999

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

486-33/50 w/256K CACHE

- 4 MB RAM 70ns
- 120 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Mini-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- Local Bus Slot
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 5.0

$1345
33 MHz

$1495
50 MHz

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

486-66 DX2 w/256K CACHE EISA

- 4 MB RAM 70ns
- 200 MB Hard Drive
- 1.2 & 1.44 MB Floppy Drives
- Full-Tower Case
- SVGA 1 MB Card
- SVGA Monitor .28dp
- Local Bus Slot
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Keyboard
- DOS 5.0

$1999

FREE BAY AREA DELIVERY or MOUSE w/SYSTEM

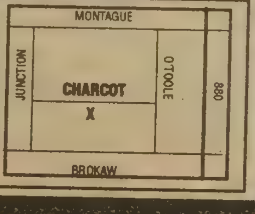
THESE SYSTEMS MADE WITH U.S. MADE MOTHERBOARDS!

EMI
INTERNATIONAL INCORPORATED

732 CHARCOT AVE., SAN JOSE, CA
(408) 321-9101
FAX:(408) 321-9104

HOURS:
MON-FRI: 8-6 SAT:10-4
PRICE SUBJECT TO CHANGE W/O NOTICE

VISA
MasterCard



WHY PAY MORE??
* Dealers * Government Agencies
* Resellers * Duplicators

The Lowest Prices in Branded and Bulk Products:
Diskettes, Data Cartridges, Ribbons and more...

-Verbatim Diskettes 3.5" DD - IBM Format
Box of 10; $6.30*

3M 1/4" Data Cartridge
DC 600A; $16.20*

INTERNET TECHNOLOGIES
Authorized Distribuitor of:
3M TDK Verbatim Panasonic Office Automation OA IBM Typewriters Printers Supplies LEXMARK Authorized Dealer Fuji

1-800-332-TAPE Fax 408-377-3703
* Prices subject to change w/o notice. Min. Order Required. * 2105 S. Bascom Ave., Campbell Ca. 95008

CUSTOM- CONFIGURED SYSTEMS

486SX-25 Local Bus.$1099 486SX-33 Local Bus....$1219
* * * *

486DX-33 Local Bus........$1299 486DX-33EISA $1289
486DX-50, 256K Cache...$1499 486DX2-66, 256K Cache.$1629
386SX-16/25/33..............$CALL 386DX-33/40...................$1049

STANDARD CONFIGURATION
4 MB SIMM 80 MB HARD DRIVE
DUAL FLOPPY DRIVE 512K SVGA CARD
101 KEYBOARD 14" SVGA MONITOR
DOS 5.0 AND WINDOWS 3.1 PRE-INSTALLED
286 SYSTEMS AVAILABLE
CALL FOR INFO ON SYSTEM UPGRADES,
SYSTEM INTEGRATION, &
NETWORK INSTALLATION.
ONE YEAR WARRANTY ON PARTS AND LABOR
LIFETIME TECHNICAL SUPPORT

ACCESSORIES

CPUs	CALL	512K VGA CARD	$36
4MB SIMM	CALL	1 MB SVGA CARD	$59
1 MB SIMM	CALL	1.2 MB FLOPPY	$50
256K SIMM	CALL	1.44 MB FLOPPY	$45
80MB HDD	$198	SVGA MONITOR	$229
127MB HDD	$239	FAX/MODEM	$69
170MB HDD	$259	IDE I/O CARD	$16
MOTHERBOARDS	CALL	KEYBOARD	$16

All prices subject to change without notice
LINTEK COMPUTERS
UNI-SCIENCE LABORATORIES
969D INDUSTRIAL ROAD, SAN CARLOS, CA 94070
PHONE (415) 595-1095 FAX: (415) 595-1096

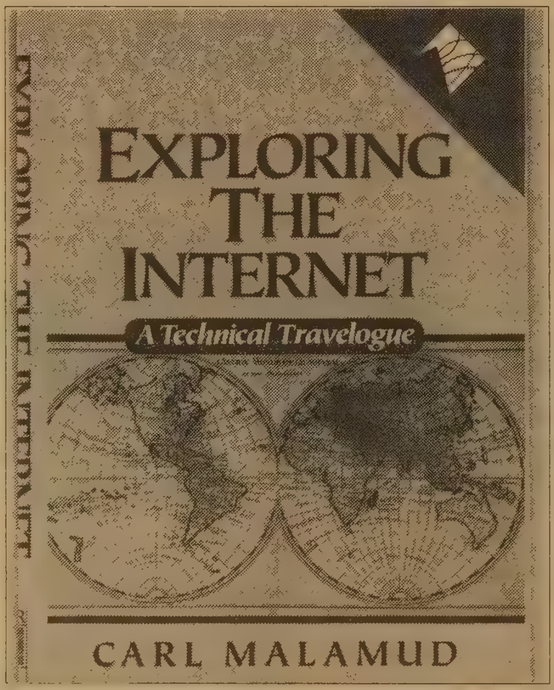
information about a wide range of hardware topics.

The tips are divided into System, Memory, Keyboard, etc. Each tip is a separate, hands-on productivity aid. This book is ideal for users who don't have the time or inclination to download public domain and shareware system enhancements from bulletin boards. Jamsa provides debug scripts, and step-by-step instructions to help you roll your own DOS system utilities. The book includes a 3.5" diskette that contains many of the best DOS shortcuts discussed in the book.

EXPLORING THE INTERNET: A TECHNICAL TRAVELOGUE

Author: Carl Malamud
Published By: Prentice-Hall
List Price: $26.95
Reviewed By: John S. Quarterman

Carl Malamud, a writer about networks (you may have seen his previous book, *Stacks,*) got InterOp Company (the same people that run the INTEROP trade show) to finance three back-to-back around-the-world airplane tickets, while he paid for the additional roundtrip to Europe himself. He went to see the people who use the Internet and learn what they use it for. The main plot of this book is his interviews with those people, interspersed with comments on many fine lunches and dinners. As he says himself, he didn't see everybody, but he did talk to some interesting and important people, many of whom have pictures in the book.



From the Internet Samurai in Tokyo to those with Shakti in Bombay, from the office of the Uncle of NSFNET in Dublin to the lair of RIPE in Amsterdam, from Brewster Kahle's basement letterpress to Milo Medin's networked airplane, from the Hong Kong Jockey Club to the halls of Geneva, many of the founders, developers, and users of the Internet speak, act, and reminisce in this book. Malamud even lets out one of the secrets of networks: they're fun.

The book is worth its price for the quotes from functionaries of ITU (International Telecommunications Union) and ISO (the International Organization for Standardization; they produce the OSI Open Systems Interconnection protocol specifications), and for the eyewitness reports on how those organizations really operate. Evidently they believed the Internet was some sort of academic toy, not much changed from the early days of the ARPANET. This book proves them wrong.

It's a good book, interspersing interesting technical detail with the inseparable politics that always precede

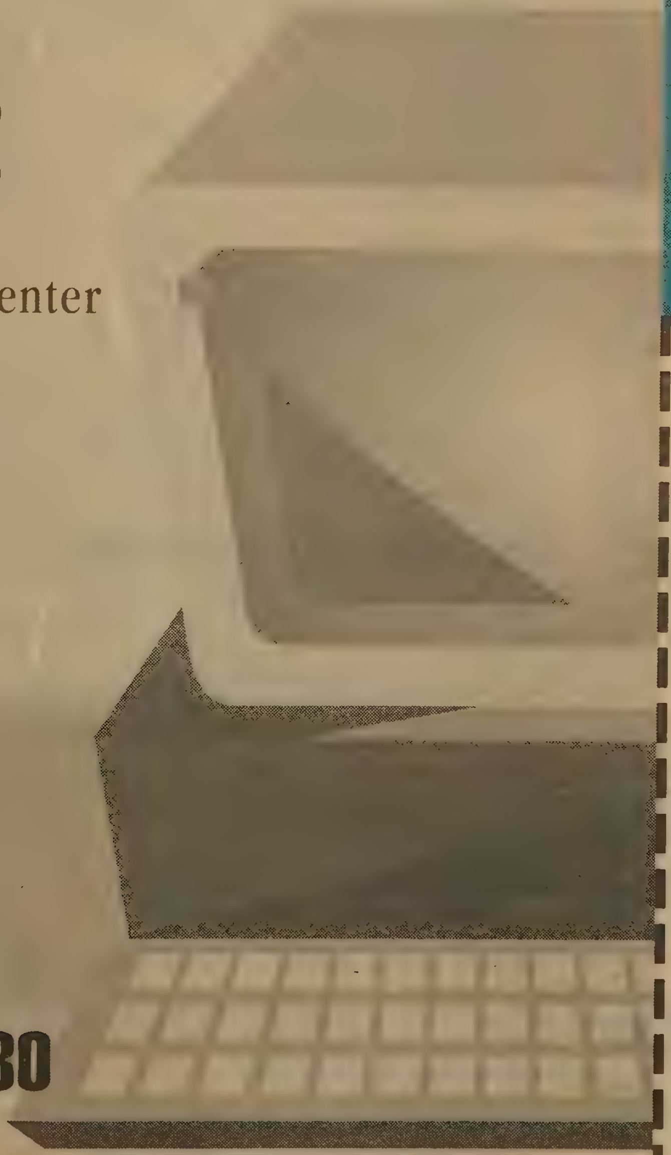
Continued on page 308

CASE WORLD*

The National Application Development Exposition

March 8 - 10:00 - 6:30
March 9 - 10:30 - 6:00

Moscone Convention Center
747 Howard Street
San Francisco, CA



Call 508-470-3880
to register or to receive a complete brochure

*Service mark of DCI

Your Free Expo Pass Includes:

FREE Star Presentations

- Tim Lister
- Bill Curtis
- Robert Rockwell
- Thomas H. Davenport
- and Clifford Stoll, author of "The Cukoo's Egg"

FREE New Product Demonstrations

FREE Guided Tours of the Expo Floor

FREE Real World Product Presentations

FREE Comedy Club

Plus the Exposition

The largest collection of application development and CASE tools ever... Representing over 97% of the products currently available.

Sponsored by
DCI
Digital Consulting, Inc.

Your FREE Pass to the CASE WORLD Expo

Bring to the Door

or FAX to
508-470-0526

Register Me Today!
(Photocopy for your colleagues)

Name ____________________
Title ____________________
Company ____________________
Street ____________________ Mail Stop __________
City/State/ZIP ____________________
Tel (___) ____________________ Fax (___) __________

FREE . . . A $25 Value

[ ] **2857.** Please register me for the CASE WORLD Exposition

A0ZKMK

RESOURCES

Calendar Of Events

CONFERENCES, SHOWS, AND OTHER SPECIAL EVENTS

MARCH

March 6 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James. Call: 1-800-533-7220.

March 7 The Computer Show & Sale. Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

March 13 Computer Show & Sale. Oakland Coliseum. Richard James. Call: 1-800-533-7220.

March 13–14 Sacramento Atari Computer Exposition. Sacramento. Sacramento. ST User Group. Call: Nick Langdon, (916)723-6425.

March 14 The Computer Show & Sale. Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

March 16–17 The Workgroup Computing Conference. Washington, DC. DCI. Call: (508)470-3880.

March 17–19 UniForum 1993 Conference. San Francisco. UniForum. Call: 1-800-323-5155.

March 20 Computer Show & Sale. San Mateo Expo Center. Richard James. Call: 1-800-533-7220.

March 21 The Computer Show & Sale. Scottish Rite Center, Sacramento. MarketPro. Call: (415)388-8893.

March 27 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James. Call: 1-800-533-7220.

March 27 The Computer Show & Sale. Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

March 28 The Computer Show & Sale. Centre Concord. MarketPro. Call: (415)388-8893.

March 30–April 1 The Eighth International Conference & Exposition On Multimedia And CD-ROM. San Jose. Reed Exhibition Co. Call: (203)352-8240.

APRIL

April 4 The Computer Show & Sale. Centennial Hall, Hayward. MarketPro. Call: (415)388-8893.

April 10 Computer Show & Sale. Cow Palace. Richard James. Call: 1-800-533-7220.

April 17 Computer Show & Sale. Oakland Coliseum. Richard James. Call: 1-800-533-7220.

April 17 The Computer Show & Sale. Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

April 18 Computer Show & Sale. Alameda County Fairgrounds. Richard James. Call: 1-800-533-7220.

April 18 The Computer Show & Sale. Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

April 18–20 EIS And Beyond Conference: How To Profit From Information Delivery. San Francisco. EIS Institute. Call: (617)964-4555.

April 23 Apple Expo West. San Francisco. Event Specialists. Call: (617)784-4531.

April 24 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James. Call: 1-800-533-7220.

April 25 The Computer Show & Sale. Scottish Rite Center, Sacramento. MarketPro. Call: (415)388-8893.

April 26–28 The Assessment, Measurement, And Evaluation Conference: Using Corporate Education To Create Competitive Advantage. Santa Clara. Linkage, Inc. Call: (617)862-4030.

April 27–29 The Fifth Annual Monterey Software Conference. Monterey. DCI. Call: (508)470-3880.

MAY

May 1 Computer Show & Sale. Cow Palace. Richard James. Call: 1-800-533-7220.

May 8 Computer Show & Sale. Oakland Coliseum. Richard James. Call: 1-800-533-7220.

May 19–21 Meckler's Fourth Annual Virtual Reality '93 Conference & Exhibition. San Jose. Meckler. Call: 1-800-635-5537.

May 25–27 NeXTWORLD Expo '93. San Francisco. NeXTWORLD Magazine. Call: 1-800-767-2336.

May 25–27 Silicon Graphics Expo '93. San Jose. Silicon Graphics. Call: PCI Trade Show Management, (512)331-7761.

May 25–28 Sixth International Software Quality Week '93 Conference: Exploring New Technologies. San Francisco. Software Research Institute. Call: 1-800-942-SOFT.

MARCH 13

TECH TALK: NANOTECHNOLOGY

San Jose

"Nanotechnology: The End of the World as We Know It" is the topic to be addressed by BC Crandall, founder of Molecular Realities. This new technology, molecular engineering, is raising fundamental questions about what we are and what we are about. Talk will be held at the San Jose Hilton Hotel. Presented by: The Tech Museum of Innovation's Tech Talk series, (408)279-7158.

CLASSES, SEMINARS, AND WORKSHOPS

MARCH

March 6 Advanced PageMaker Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 6 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 6 How To Build Your Own 486 PC Computer For Under $770 Class. Los Altos. Foothill College. Call: (415)574-6563.

March 6 Multimedia: Hoax Or Dynamic Productivity Tool Seminar. San Francisco. UltraVision. Call: (415)863-8407.

March 8 Beginning QuarkXPress Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 8 Beginning Word (For Macintosh) Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 8 Intermediate WordPerfect For DOS Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 8 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 8 Supporting System 7 Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 8–9 OS/2 2.0 Course. Oakland. MIS

Continued

32-Bit VESA LOCAL BUS

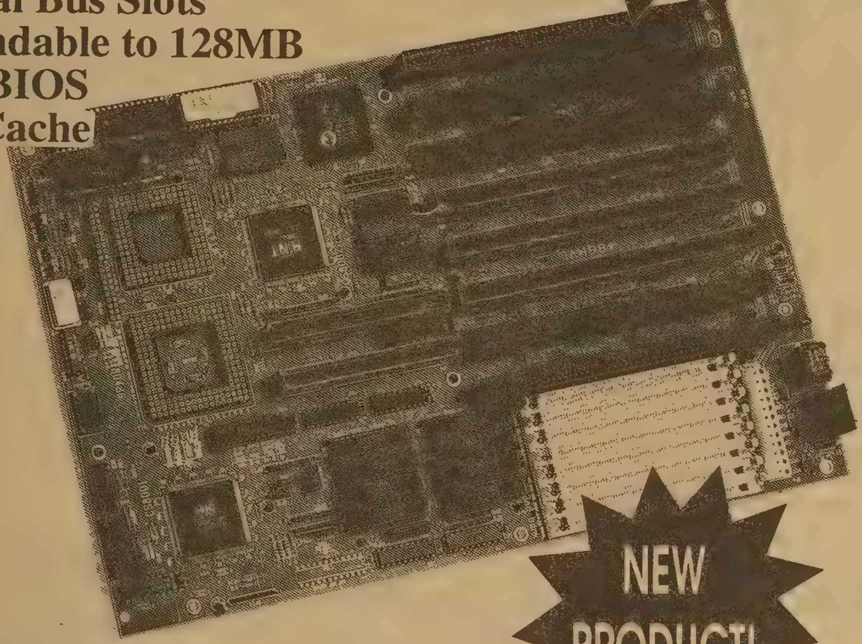
LOCAL BUS SPEEDS UP WINDOWS, MULTIMEDIA & CAD UP TO 5X AS FAST!! NOW YOUR CHOICE IS VESA LOCAL BUS!!

GREAT LOW PRICES!

486-VESA LOCAL BUS 33/50/DXII-66 MHz

Includes:

- 3 EISA Slots
- 2 Local Bus Slots
- Expandable to 128MB
- AMI BIOS
- 64K Cache



Now Is The Perfect Time To Upgrade Your Older Computer Systems To The *Latest* And *Fastest* Technology with COMWARE'S NEW 486 VESA LOCAL BUS MOTHERBOARDS. PRICES START AT ONLY

$149.00*

Completely Compatible With Your 286 & 386 Software

CALL TODAY FOR MORE INFORMATION!

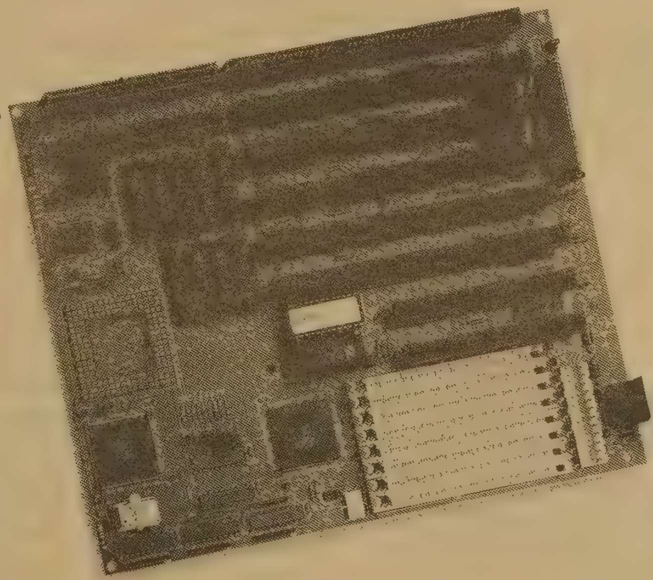
*Limited Time Offer

NEW PRODUCT!

486-VESA LOCAL BUS DX-33/DX 11-50/66 MHz

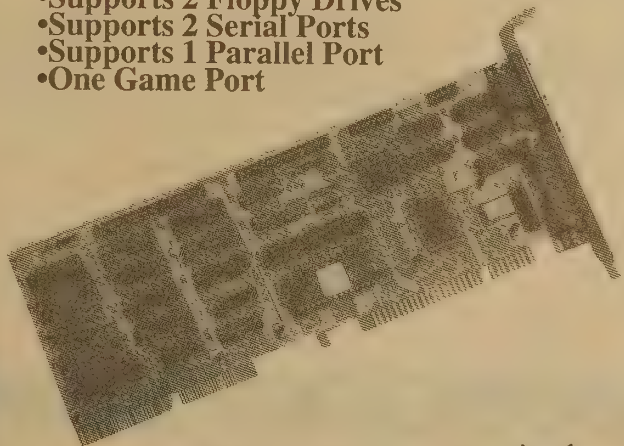
Includes:

- 8 ISA Slots
- 2 Local Bus Slots
- AMI BIOS
- 64K Cache



VESA LOCAL BUS I/O CARD

- Compatible with VESA Local Bus Standard
- IDE Port Supports 2 IDE HDD
- Supports 2 Floppy Drives
- Supports 2 Serial Ports
- Supports 1 Parallel Port
- One Game Port



GENOA, ORCHID & DIAMOND
SUPER VGA CARDS
FOR LOCAL BUS ALSO AVAILABLE

CALL NOW!

DEALERS, VOLUME BUYERS, VAR'S CALL FOR QUANTITY PRICES
CORPORATE PO'S WELCOME

COMWARE
MICRO, INC.

(800) 286-0288
2247 RINGWOOD AVE.
SAN JOSE, CA 95131

(408) 433-0288
Fax: (408) 433-0254
HOURS: M-F 9-5:30
* Prices Subject To Change w/o Notice

Calendar Of Events continued

Services. Call: 1-800-300-4MIS.

March 8–9 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 8–10 Case World: The National Application Development Conference & Exposition. San Francisco. DCI. Call: (508)470-3880.

March 8–12 UNIX For System Programmers Course. Santa Clara. Bill Rieken. Call: (408)241-8319.

March 9 Beginning Microsoft Windows Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 9 Intermediate QuarkXPress Class. San Francisco. Media Alliance/Computer Access. Call: (415)441-2557.

March 9 Intro To Macintosh Networks Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 9 Intro To MS-DOS 5.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 9 Intro To Word Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 9 Using Word 5 Class. San Francisco. MACcess Computer. Call: (415)338-1975.

March 9–10 CorelDraw Seminar. San Mateo. Altman Associates. Call: (408)252-5448.

March 10 Beginning PowerPoint Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 10 Beginning WordPerfect For DOS Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 10 Intro To Macintosh Networks Class. San Jose. Abacus Training. Call: (415)974-7200.

March 10 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 10–12 Novell System Supervisor 3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 11 Beginning WordPerfect For Windows Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 11 Intermediate Word (For Macintosh) Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 11 Intro To Windows 3.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 11–12 IBM LAN Server 3.0 Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 11–12 Local Area Networks: LANtastic To Novell Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 12 Beginning FileMaker Pro For Windows Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 12 Intermediate FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 12 Intermediate Word (For Macintosh) Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 12 Intermediate WordPerfect For Windows Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 13 Advanced Quark Class. San Francisco. Media Alliance/Computer Access. Call: (415)441-2557.

March 13 Beginning FileMaker Pro For Windows Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 13 Beginning Lotus 1-2-3 For DOS Class. San Rafael. Computer Training Center. Call: (415)459-3200.

March 13 Client Server Architectures In A Windows Environment Seminar. San Francisco. UltraVision. Call: (415)863-8407.

March 13 Digital Video Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

March 13 How To Build Your Own 486 PC Computer For Under $770 Class. Kentfield. College of Marin. Call: (415)485-9305.

March 13–14 NetWare System Administration Course 1. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 15 Analyzing, Troubleshooting NetWare LANs Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 15 Intro To Macintosh Class. San Francisco. MACcess Computer. Call: (415)338-1975.

March 15 LAN Fundamentals Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 16 Beginning FileMaker Pro For Windows Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 16 Beginning Quattro Pro 3.0/4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 16 Beginning Word (For Macintosh) Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 16–17 CorelDraw Seminar. Santa Clara. Altman Associates. Call: (408)252-5448.

March 17 Beginning Quattro Pro Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 17 Intro To DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 17 Recovering NetWare System 2.x/3.x Data & Passwords Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 17–18 Microsoft Project For Windows Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 17–21 UNIX For Network Programming Course. Santa Clara. Bill Rieken. Call: (408)241-8319.

March 18 Accounting Workshop: Ten Things You Should Know Before You Automate Your Business Accounting System. San Francisco. JC Lukrich & Co. Call: Beth Markus, (415)905-6900.

March 18 Accounting Workshop: What Lead Tracking Or Contact Management Software Can Do For Your Business. San Francisco. JC Lukrich & Co. Call: (415)905-6900.

March 18 Beginning Word 2.0 For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18 Intro To WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 18 NetWare LANalyzer For Windows Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 19 Intermediate WordPerfect For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 19 Intro WordPerfect For Windows 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 19 Macintosh Network Administration Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 19 Upgrading To NetWare 4.0 For 3.11 Professionals Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 20 Adobe Premier Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

March 20 Beginning Claris Works Class. Walnut Creek. New Horizons. Call: 1-800

Continue

APRIL 18–20

EIS AND BEYOND

San Francisco

This year's conference on "EIS and Beyond: How to Profit From Information Delivery" will feature leading-edge consultants, including Aaron Marcus, Dan Shafer, and David Beaver, discussing guidelines to maximize information delivery through client/servers, GUIs, SQL access, distributed processing, OOP, and downsizing. There will be seminars to meet the needs of beginners, as well as user group discussions for experienced planners to "network" with their counterparts on solutions to managing growth, multiplatform tools, politics, MIS enthusiasm, realistic expectations, data ownership, and more. Contact: The EIS Institute, 174 Cabot St., Newton, MA 02158. (617)964-4555.

WE SELL QUALITY, RELIABILITY, SERVICE & TECHNOLOGY!!

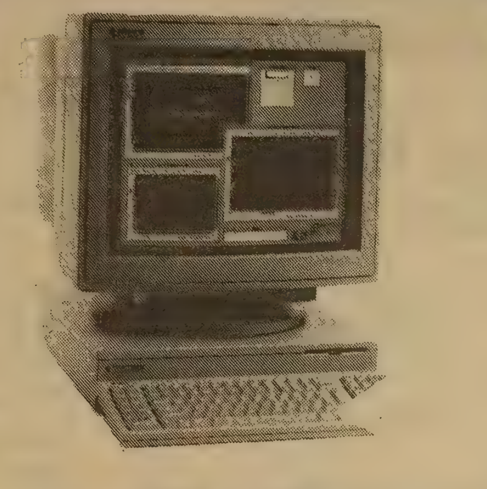
** PromoX Ss II-40 WORKSTATION **

$5995

SUN SPARC II-40 MHz 100% Compatible

40 MHz SPARC Integer Unit/Floating Point Processor
64K Write Through Cache, Three S-bus Expansion Slots,
32MB RAM, Sync SCSI Controller, 2 RS-423A I/O Ports, 15-pin Ethernet Port, Desktop Case, Keyboard, Mouse, 340 MB Hard Drive, GX Graphics Accelerator, 17" Color Monitor (.26mm), SUN Solaris OS 1.0 (Includes SUN OS, Sunview and Openwindow)

UPGRADE SPARC™ I + TO SPARC™ II-40	**$1650**
S-BUS Fax/Modem with S/W	**$895**



ONE YEAR ON-SITE SERVICE ! BUY SS II AND GET X NET FREE!

*** X TERMINAL/SERVER ***

X Terminal 14"/17" Color Monitor	$1545/1745
X-Net (XII/R5 Server for DOS, TCP/ IP, PC/NFS, FTP, TELNET)	245

➡Come see our new technology–Multi-Network Environment

** NOTEBOOK COMPUTER **

5 HOUR BATTERY!

Supports UNIX/XWINDOWS Driver!

386SX-25/386SL-25/386DXL-33 MHz with 4/8MB RAM, 1.44 MB FD, 80/120/200 MB HD	**$BEST**
486DX-50/486DX-33/486SX-25 MHz with 4/8/16MB RAM, 1.44 MB FD, 80/120/200 MB HD	**$BEST**
486DX-33/486SLC-25 MHz COLOR with 4/8/16MB RAM, 1.44 MB FD, 80/120/200 MB HD	**$BEST**

*** UNIX FOR PC ***

Licensed AT&T UNIX SVR4

Run-Time 2-user	$250
Networking Systems	200
Development System	200
X11R5 & Motif 1.2 (1280x1024) 100K Xstones	295
COMPLETE SET	**$649**

(Diskette Version Add $50)

UnIVel

UnixWare Personal Edition	$340
UnixWare Application Server	170
UnixWare Personal Utilities	270
UnixWare TCP/IP & NFS	205
UnixWare Encryption Utilities	70
Windows Merge for UnixWare	270
Veritas Advanced File System for UnixWare	2150

SunSoft/Interactive UNIX

Interactive UNIX/386 Operating	$350
Interactive UNIX/386 Application Platform	625
UNIX/386 Network Platform	835
UNIX/386 Workstation Platform	975
UNIX/386 Workstation Developer	1675

SCO UNIX/XENIX:

SCO Open Desktop Personal (Tape)	$975
SCO Open Desktop Server Upgrade (Tape)	1045
SCO Open Desktop Server System (Tape)	1815
SCO Open Desktop Development System (Tape)	1255
SCO UNIX (2 User)	395
SCO UNIX (3+ User)	895
SCO UNIX Development	895
SCO XENIX OS (1-2 Users)	395
SCO XENIX OS (3+ Users)	625

*** NETWORKING ***

SilverNet Starter Kit (the Fastest Peer-to-Peer Network)	$285
Novell Netware	$BEST
8-Bit Arcnet Card (Star/Bus)	45/50
16-Bit Arcnet Card (Star/Bus)	65/70
NE-1000 Compatible 8-bit Ethernet Card (Coax/10 Base T)	65/70
NE-2000 Compatible 16-bit Ethernet Card (Coax/10 BaseT)	70/75
Arcnet 8-Port Hub	120
10 BaseT 8 Port Hub	250
10 BaseT 12 Port Intelligent Hub	575
SMC (Western Digital) 8-bit Ethernet Card (Coax/10BaseT)	130/135
SMC (Western Digital) 16-bit Ethernet Card (Coax/10BaseT)	160/180
WD8003E 8-bit Compatible	85
SMC COM/NE2000 16-bit Compatible combo Board (BNC+AUI+10BaseT)	100
Pocket LAN Card	150
3 Com 3C503 Ethernet II	170
Token Ring Adapter 16/4 Mbs	425
8 Port Token Ring STP/UTP/MAU	345
8 Port Intelligent Multi-User Card (RS232)	299

3/486 UPGRADEABLE LOCAL BUS SYSTEMS

486/66 MHz ISA/EISA	$1060/1250
486/50 MHz ISA/EISA	975/1055
486/33 MHz	815
486SX/25 MHz	650
386/33 MHz	550
386/40 ISA Non-Local Bus	490

ONE YEAR ON SITE SERVICE

- 4 MB, 128K Cache
- 2 VESA Local Bus ,
  5 16-bit ISA Bus,
  1 8-bit ISA Bus Slots
- 1.2 MB & 1.44 MB Floppy Drives
- Local Bus IDE Controller w/2S/1P/1G Ports
- 101 Key Enhanced Keyboard
- Mini-Tower Case w/200 W Power Supply
- PC Users Guide

SPECIAL PRICE FOR DEALERS/VAR ON LOCAL BUS MAINBOARD & VGA CARD (Made In USA)

ONE YEAR PARTS, TWO YEAR MAINBOARD, THREE YEARS LABOR WARRANTY

Video Card Options:

Accumose (with Window Accelerator) 512K VGA Card	$40
Trident 1 MB VGA Card	55
Tseng Labs ET4000 1 MB VGA Card	78
Tseng Labs ET4000 1 MB VGA Card Hi-Color	98
Diamond SpeedStar 24X	155
Diamond Stealth 1 MB VGA Card	170
Orchid Fahrenheit VA 1 MB	175
ATI Graph Ultra 1 MB	240
ATI Ultra Pro Local Bus 2 MB	445
Local Bus Cirrus Logic 16 Million Colors	100
Local Bus ET4000 1MB VGA Hi-Color 16 Million Colors	120
Local Bus S3 Chip 1MB VGA Hi-Color 16M Colors	145

Monitor Options:

14" Mono	$90
14" SVGA Mono (1024x768) (.28mm)	110
14" SVGA (.28mm)	265
14" NI SVGA (.28mm)	310
14" Relisys VESA NI SVGA (.28mm) 70Hz	320
14" ViewSonic NI SVGA (.28mm)	345
15" CTX NI SVGA (.28mm)	425
15" Hitachi SVGA (1024x768 .28mm)	540
15" NEC 4FG (1024x768 .28mm)	765
17" Nanao F550i SVGA (.28mm)	1120
17" Samsung NI SVGA (.31mm)	750
17" Samsung NI SVGA (1280x768) (.26mm)	910

Hard Drive Options:

40/80/120 MB	$145/195/235
Conner 540 MB 12ms (IDE)	890
Fujitsu 520 MB 9ms (SCSI)	880
Maxtor 200 MB 15ms (IDE)	330
Maxtor 340 MB 13ms (IDE/SCSI)	600
Maxtor 1.2 GB 14ms (SCSI)	1350
Maxtor 1.7 GB 13ms (SCSI)	1615
Quantum 240 MB (IDE)	365
Local Bus IDE Controller	60
Local Bus IDE Controller (up to 16 MB Cache)	185
UltraStor SCSI Local Bus Controller	295

MULTIMEDIA KIT

*350ms CD-ROM
*Gallant Sound Card
(Sound Blaster & MDU-401 Compatible)
*Microphone
*Voice Kit
*Speakers
*5 CD-ROM Titles For Windows

$395

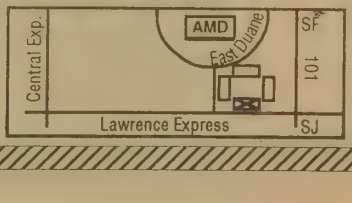
UNIX / NOVELL NETWORK INSTALLATION / MAINTENANCE CALL

Some Of Our Satisfied Customers:

- AMD
- Cadence
- DCA
- Ford
- Fujitsu
- IBM
- ISSI
- Lockheed
- McAfee
- Microsoft
- Quantum
- Stanford Univ.
- Sony
- U.S. Postal Service
- Winbond

PromoX Systems

1050 East Duane Ave., Suite B
Sunnyvale, Ca 94086



Sparc & SUN registered trademarks of SUN Microsystems Inc..

Tel: (408) 733-2966
Fax: (408) 733-2968
E-Mail Address: promox@cup.portal.com
Hours: Mon-Fri 9-6 Sat 10-4
Prices Subject To Change W/O Notice

LATEST TECHNOLOGY
Lowest Prices. Guaranteed!

MICRONICS

486-33/50 VESA Local Bus Super VGA System

- MICRONICS VESA Local Bus Motherboard
- Built-in VESA Local Bus IDE Controller
- 64K Cache
- 4MB RAM
- 213MB IDE Hard Drive
- VESA Local Bus Windows Accelerator SVGA Card with 1MB
- 14" Non-Interlaced Monitor 1024x768 .28mm
- 1.2MB & 1.44MB Floppy Drives
- 2 Serial, 1 Parallel ports
- 101 Keyboard

$2099/CALL

486-33/50 Super VGA System

- 486-33/50 Motherboard, 64K Cache
- 4MB RAM
- 120MB IDE Hard Disk
- 14" SVGA Monitor 1024x768, .28mm Interlaced
- 1.2MB & 1.44MB Floppy Drives
- 2 Serial, 1 Parallel Ports
- 101 Keyboard

$1388/1580

486DX2-66MHz $1799

HARD DRIVES

105MB IDE	$219
120MB IDE	259
210MB IDE	369
340MB IDE	579
535MB IDE	925

PRINTERS

HP LaserJet IV	$1399
HP IIIP	979
HP IIP+	799
DeskJet 500 /DeskWriter	399
DeskJet 500C /550C	529/729

SOFTWARE

WordPerfect for Windows Upgrade	$99
Microsoft Excel Upgrade	129
Microsoft Access (While Quantity Lasts)	99
Paradox for Window (Introductory offer)	135
Microsoft Mouse with Trivial Pursuit	79

COMMUNICATIONS

Fax/modem Internal 96/48/24	$59
Above with Software for Windows	69
Modem /Fax 14.4K Internal	239
Modem /Fax 14.4K External	289
Pocket Fax/Modem Ext. 96/24	129

WE ALSO CARRY SIMMS, LASER PRINTER MEMORY, MATH CO-PROCESSORS AND MORE!

Monarch Computers

(510) 526-7741
Fax (510) 526-7859
863-B San Pablo Ave.
Albany, CA 94706
Hours: M-F 9:30am to 6:00pm
SAT 10-5

Prices subject to change without notice.
Not responsible for typographic errors.

Full Desktop & Copying Services Available

Calendar Of Events continued

999-6954.

March 20 Expert Systems Seminar: Productivity Tool Or Fantasy? San Francisco. UltraVision. Call: (415)863-8407.

March 20 How To Build Your Own 486 PC Computer For Under $770 Class. Sacramento. American River College. Call: (707)484-8643.

March 20 IBM PC Clone Hardware Upgrade Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 20–21 NetWare System Administration Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 21 Survey Of New Music And Audio Technologies Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7375.

March 22 Beginning Word (For Macintosh) Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 22 HyperCard Intro Class. San Jose. Abacus Training. Call: (415)974-7200.

March 22–23 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 23 Access Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 23 Beginning PowerPoint Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 23 Implementing Pen-Based Applications For Mobile Workers Seminar. Los Angeles. Slate Corp. and Microsoft. Call: (714)655-1000.

March 23 Intermediate Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 23 Intermediate Quattro Pro 3.0/4.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 23 NetWare Packet Burst Communications & Packet Filtering Technology Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 23–24 CorelDraw Seminar. Concord. Altman Associates. Call: (408)252-5448.

March 24 Beginning Approach Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 24–25 CorelDraw Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 24–25 4th Dimension Class. San Jose. Abacus Training. Call: (415)974-7200.

March 24–26 NetWare 386 Administration (v3.1 & v3.11) Class.

Save Time And $$ At MarketPro Shows

The COMPUTER Products SUPERSTORE Show & Sale At Your Door

10-5pm Adm. $6
FREE W/Mbrshp.

Sun. Mar. 7 - SANTA ROSA *Sonoma Co. Fairgrounds*	**Sun. Mar. 21 - SACRAMENTO** *Scottish Rite Center*	**Sun. Mar. 28 - CONCORD** *Centre Concord*
Sun. Mar. 14 - VALLEJO *Solano Co. Fairgrounds*	**Sat Mar. 27 - SANTA ROSA** *Sonoma Co. Fairgrounds*	**Sun. Apr. 4 - HAYWARD** *Centennial Hall*

1 Year Membership $25 - 2 Year Membership $35
Hardware, Software, & Peripherals

Membership entitles you to FREE Adm. to over 80 shows a Yr. in CA. Other locations in Calendar of events or call MarketPro for Other locations (415)388-8893

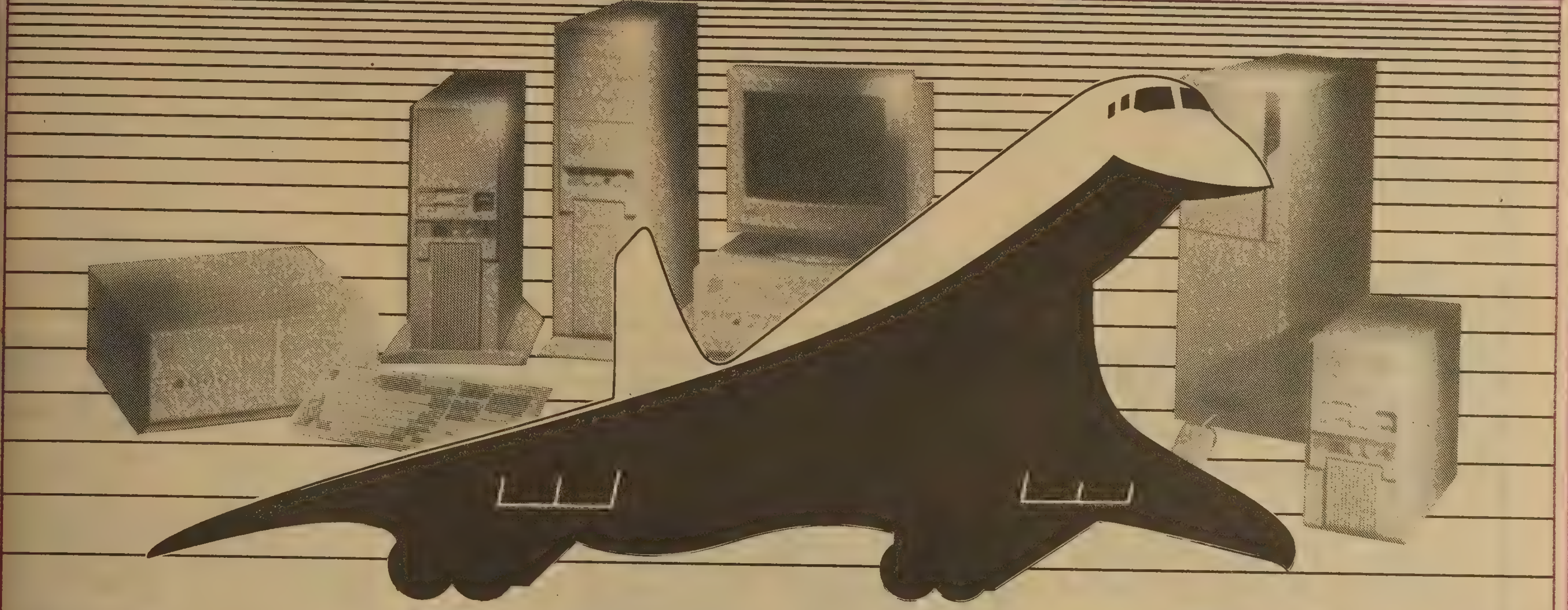
Save Up to 90%

Highest Quality • Huge Selection
The latest Computer Equipment
Friendly, knowledgeable people

Don't Pay Retail $$ For Your Computer Needs!

Your Satisfaction Matters

2 Year Parts 5 Years Labor On All Systems



386DX-40

130MB Drive VGA System

- AMD 80386SX processor
- AMI Bios
- 128K High-speed cache SRAM
- 4MB Fast-page mode 70ns RAM
- Mitsumi 1.2 and 1.44MB Floppy Drive
- Maxtor 130MB Hard Drive
- Trident 16-Bit 256 Color SVGA Card w/1MB
- 2S/1P/G ports
- IDE Interface
- Mini-Tower Case
- 230W UL List Power Supply
- 14" .28 Interlaced SVGA Monitor (1024x768)
- 101 Enhanced Keyboard
- Landmark Speed Running at 66MHz

$999

486DX-33/50

240MB Drive VGA System

- Intel 80486DX co-processor (w/8K Cache & Math Co-processor)
- AMI Bios
- 256K High-speed cache SRAM
- 4MB Fast-page mode 70ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Quantum 240MB Hard Drive
- Diamond SpeedStar 24X True Color w/1MB
- 2S/1P/G ports
- IDE Interface
- Mini-Tower Case
- 230W UL List Power Supply
- 14" .28 Non-Interlaced SVGA Monitor (1024x768)
- 101 Enhanced Keyboard
- Landmark Speed Running at 151MHz/200+MHz

$1550/1750

486-33/50 VESA Local Bus

240MB Drive VL System

- Intel 80486DX-33/50 processor (With 8K cache & Math Co-processor)
- AMI Bios
- 2 VESA Standard Local Bus
- 256K High-speed cache SRAM
- 8MB Fast-page mode 7ns RAM
- Teac 1.2 and 1.44MB Floppy Drive
- Quantum 240MB Hard Drive
- 32 Bit VESA Diamond Stealth 24 SVGA 1MB
- 32 Bit VESA IDE Controller
- 2S/1P/G ports
- Mid-Tower Case
- 230W UL List Power Supply
- 14" Viewsonic 6E SVGA Monitor (1024x768)
- Focus 2001 Keyboard
- Landmark Speed Running at 200I MHz

$1900/2100

Bondwell®

NOTEBOOK

MODEL 486NC

- 486 SLC-25MHz
- 2MB RAM, up to 8MB
- 80MB Hard Disk
- 80387 Co-processor Socket
- 10" 640x480 LCD VGA Display
- Advanced Power Management
- Bundled ex. 1.44MB Floppy Drive
- Weight 5.0 lbs
- 6A-F Size Nicad Battery Pack
- DR-DOS 6.0
- Fax/Modem

$1699

LOW PRICE - HIGH QUALITY - EXCELLENT SERVICE

MOTHERBOARDS W/CPU

386 Upgradable to 486	$CALL
486DX-50 W/256K Cache	670
486DX-33 w/256K Cache	500
386DX-40 w/128K Cache	195
386DX-25/33	125/40

VIDEO ADAPTERS

Trident 16-bit SVGA w/1MB	$60
Diamond SpeedStar 24X	165
Diamond Stealth w/1MB VRAM	220
Orchid Fahrenheit w/1MB VRAM	200
MGP Card	15

FLOPPY DRIVES / HARD DRIVES

1.22 5 1/4" Floppy Drive	$55
1.44 3 1/2" Floppy Drive	50
20MB IDE	99
40MB IDE	150
80MB IDE	195
130MB IDE	240
170MB IDE	275
200MB IDE	350
340MB IDE	600
120MB Tape Drive	185
250MB Tape Drive	250

MONITORS

14" .28 Interlace w/Trident 1MB	$310
14" .28 Non-Interlace w/Trident 1MB	350
15" NEC 3FGX/4FG	640/750
17" NEC 5FG	1355
Viewsonic 6E/5E	330/410
Nanao Monitor	CALL

FD/HD CONTROLLERS

IDE 2HD/2FD	$15
IDE 2HD/4FD	50
IDE 2HD/2FD/2S/1P/1G	20
4FD For AT/XT	40
2FD For AT/XT	30
IDE Cache Controller	145

PRINTERS

Epson LQ 1070C	$360
Fujitsu DL 3600	360
HP IIP+/IIIP	795/999
HP DeskJet 500/500C	399/600
HP DeskJet 550	750
Okidata OL400/OL800	599/1070

MISCELLANEOUS

AT I/O 2S/1P/1G	$15
AT I/O 2S/1P/1G W61550CN Chip	70
2400 Int. Modem	35
96/24 Int. Fax/Modem	50
96/14.4K Int. Modem	250
9600 Int. Modem	220
QIC Mouse	35
Silver Mouse w/Pad	20
Track-ball	30
Logitech Scanner w/OCR	300

SOFTWARE

MS Access 2.0	$99
MS-Windows 3.1	80
MS-Word 2.0	285
MS-Excel 4.0	285
MS-Draw 2.0	120
Aldus Page-Maker 4.0	500
Lotus for Windows	330
Harvard Graphics 3.0	330
Microsoft Mouse	50
Logitech Trackman	95
WinFax Pro 3.0	120

Shareware Available

1 Year Warranty on all components purchased without system. Prices subject to change without notice.

MULTIMEDIA

- Mitsumi 340ms CD ROM w/Internal Kit
- Power Blaster Jr. Sound Card
- Two Dynamic Stereo Speakers
- Quickshot Joystick
- 1,400 Programs CD Disk
- CD Music Disk
- CD-Play Command
- Windows 3.1 Compatible
- Sound Blaster Compatible

$380

PC TEN

Albany-Berkeley
1533 Solano Ave.
Berkeley, CA 94707
510/527-1388

Berkeley
6640 Telegraph Ave.
Berkeley, CA 94609
510/849-0829

San Leandro
1933 Davis St. #262
San Leandro, CA 94570
510/568-1688

DEALER INQUIRIES WELCOME

USM

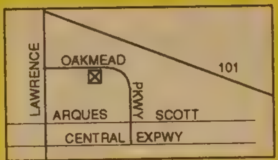
US MACH

US MACH Systems
USM Distributors
VISA Incorporated 1983 MasterCard

HOURS: M-F 9-6 • Sat 10-5

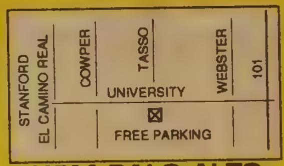
Price and availability subject to change.
No surcharge for credit cards.

Celebrating Our 10 Year Anniversary
Super Systems • Super Savings!



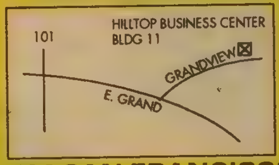
LAWRENCE
OAKMEAD
101
ARQUES
PKWY
SCOTT
CENTRAL EXPWY

USM SUNNYVALE
1290 Oakmead Parkway, Sunnyvale, CA 94086
408-738-8291 FAX: 408-738-8299



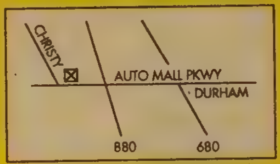
STANFORD
EL CAMINO REAL
COWPER
TASSO
WEBSTER
101
UNIVERSITY
FREE PARKING

USM PALO ALTO
540 University Ave.Palo Alto, CA 94301
415-325-0651 FAX: 415-325-2459



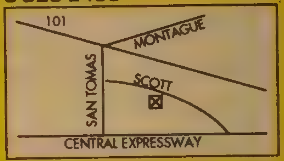
HILLTOP BUSINESS CENTER
BLDG 11
101
GRANDVIEW
E. GRAND

USM SAN FRANCISCO
1101 Grandview Drive So. San Francisco, CA 94080
415-952-5885 FAX: 415-266-9134



CHRISTY
AUTO MALL PKWY
DURHAM
880
680

USM FREMONT
43104 Christy Street Fremont, CA 94538
510-623-9040 FAX: 510-623-7592



101
MONTAGUE
SAN TOMAS
SCOTT
CENTRAL EXPRESSWAY

USM SANTA CLARA
3070 Scott Blvd. Santa Clara, CA 95054
408-980-0603 FAX: 408-980-0604

Visit our stores
In SOUTHERN CALIFORNIA :
USM BREA (714) 255-0113
USM IRVINE (714) 252-8335

SUPER SYSTEM SPECIALS

HURRY! Limited Promotion

SYSTEM CONFIGURATION:

- 4MB, 70ns RAM
- 130/170/213MB Hard Disk
- 2 Floppies—1.2MB & 1.44MB
- SVGA Monitor 1024x768 .28 dp
- SVGA Card w/1MB
- 101 Enhanced Keyboard
- 2 Serial, 1 Parallel, 1 Game port
- Enhanced Case, Minitower
- 1 year Parts & Labor Warranty

	130MB	170MB	213MB
386-40/128k	$993	$1043	$1093
486SX-25	$1093	$1143	$1193
486-33DLC/64k	$1193	$1243	$1293
486-33INTEL/64k	$1293	$1343	$1393
486-50/64k	$1493	$1543	$1593
486-66/64k	$1593	$1643	$1693

OPTIONS:

16.7M colors Accelerator	Add $50
Viewsonic 6E Monitor	Add $90
256K Cache Upgrade	Add $50
Multimedia Upgrade Kits	Lowest Price

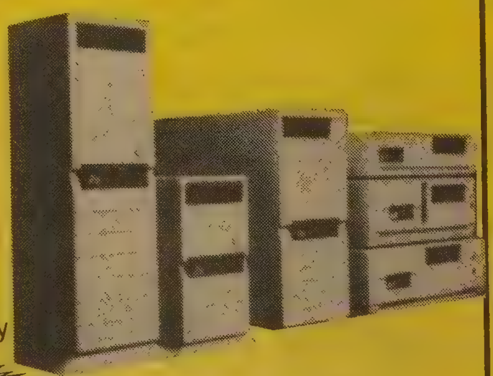
OTHER UPGRADE OPTIONS AVAILABLE
Due to fluctuating CPU & RAM costs, please call to confirm prices

FREE Serial Mouse w/ complete system purchase

US Mach VL-BUS

SYSTEM CONFIGURATION:

- 486-33 VLB/256k cache
- 4MB, 70ns RAM
- 130/170/213/250MB Hard Disk
- TEAC 1.2MB & 1.44MB Floppies
- SVGA Monitor 1024x768
- VLB Video w/1MB
- VLB-IDE/IO 2S, 1P, 1G
- 101 Enhanced Keyboard
- Diamond Minitower Case
- 1 year parts & labor warranty



$1495

FREE Serial Mouse

	130MB	170MB	213MB	250MB
486-33 VLB /256k	$1495	$1545	$1595	$1645
486-66 VLB /256k	$1795	$1845	$1895	$1945

Name Brand Specials
Call USM for Lowest Prices

Hard Drive LIMITED SALE!!

Maxtor®

130MB 15ms IDE 7120	$235
213MB 15ms IDE 7213	$335
340MB 15ms LXT340A	$575
535MB 12ms LXT535	$895
1.2GB/1.7GB	CALL

FUJITSU

520MB 12ms IDE2624T	CALL

CONNER

170MB 16ms	$285

Other Sizes Call US Mach for Lowest Prices

QUICKPATH
486-66DX2
$995

3 yr. Motherbd. Warranty
MADE in USA

Port•Folio w/4 ser/2 par/ 4 FD/2HD/ 1 game port	$95
w/16550 UART	125

HEWLETT PACKARD

LaserJet IV	CALL

NORTHGATE KEYBOARDS

Omnikey 101ni/102	$79
Omnikey Ultra	CALL

TOSHIBA
3401 200ms
CD ROM
$495

LITHIUM REPLACEMENT BATTERIES **$12.00**

VESA LOCAL BUS SYSTEMS SUPER SALE!

ORCHID VL-BUS 486-33

- ORCHID Superboard 486-33 VLB
- 4MB, 70ns • 256k Cache
- Maxtor 130MB, 15ms
- Northgate Omnikey 101
- TEAC 1.2 & 1.44 Floppies
- ORCHID Fahrenheit VLB
- Viewsonic 6E Monitor
- 2 Serial/1 Para. • Midi Tower

$1795

SuprBd	130MB	170MB	213MB	250MB
486-33	$1795	$1845	$1895	$1945
486-66	$2095	$2145	$2195	$2245

MICRONICS 486-33 VL-BUS

- MICRONICS VCP 486-33 VLB
- 4MB, 70ns • 256k Cache
- Maxtor 130MB, 15ms
- Northgate Omnikey 101
- TEAC 1.2 & 1.44 Floppies
- VLB-Video/Farenheit VLB
- Viewsonic 6E Monitor
- On-Board VL-BUS IDE Cntlr./IO
- 2 Serial/1 Parallel • Midi Tower

$1895

	130MB	170MB	213MB	250MB
486-33	$1895	$1945	$1995	$2045
486-66	$2195	$2245	$2295	$2345

AMI SuperVoyager VLB 486-33

- AMI SuperVoyager VLB 486-33
- 4MB, 70ns • 256k Cache
- Maxtor 130MB, 15ms
- Northgate Omnikey 101 NI
- TEAC 1.2 & 1.44 Floppies
- VLB-Video/Fahrenheit VLB
- Viewsonic 6E Monitor
- On-Board VL-BUS IDE Cntlr.
- 2 Serial High Speed 16550 UARTS /1 Parallel • Midi Tower

$1995

	130MB	170MB	213MB	250MB
486-33	$1995	$2045	$2095	$2145
486-50	$2245	$2295	$2345	$2395
486-66	$2295	$2345	$2395	$2445

AMI High Performance Motherboards

Baby Screamer 386-33	$295
SuperVoyager LC ISA	
486-33	795
486-50/66	995/1045
VL-BUS *NEW!*	CALL
NEW AMI Baby EISA w/256k	
486-33	1095
486-50/66	1195/1295
NEW! Enterprise III 486	CALL
EISA Fastview 1MB	295
FASTDISK NC SCSI-EISA	375
FASTDISK CACHE	495

MICRONICS

XCP 486-33 /256k ISA	$645
VCP 486-33 /256k VL-Bus	795
E3 486-33 /256k EISA	895
XCP 486-66 /256k ISA	945
VCP 486-66 /256k VL-Bus	1175
E3 486-66 /256k EISA	1195
MICRONICS SVGA-VLB	195
ATI MACH 32 1MB	345
ATI MACH 32 2MB	495
34F VLB-SCSI	295

FAX MODEM SALE

SmartConnect 9624i $59

ataFax 9624i	$109
i-Per 96/144	$229
omm-panion 9624	$129
omm-panion 144/96	$299

STANDARD TECHNOLOGIES SVGA MONITORS

4" 1024x768 .39 i	$245
4" 1024x768 .28 i	$265
4" 1024x768 .28 ni	$325
17" 1024x768 .31 ni	$645
VIEWSONIC	LOWEST
SONY, NEC	LOWEST

SUPER VGA VIDEO CARDS

NEW! 16.7M True Colors
CIRRUS LOGIC CHIP SVGA 1MB **$95**

SVGA 1MB (256k Colors)	$55
SVGA 512k	$45

MULTIMEDIA

LATEST PRODUCTS...LOWEST PRICES

CREATIVE
CREATIVE LABS, INC.

Pioneer of Multimedia Technology!

- SOUND BLASTER
- SOUND BLASTER PRO BASIC
- SOUND BLASTER PRO
- PORT BLASTER
- MIDI BLASTER
- WAVE BLASTER
- SOUND BLASTER 16 ASP
- SOUND BLASTER CD-ROM UPGRADE KIT
- SOUND BLASTER MULTIMEDIA STARTER KIT
- SOUND BLASTER MULTIMEDIA UPGRADE KIT

Reseller News

MEDIA VISION *Multimedia Experts!*

MPC Multimedia PC

- FUSION CD
- THUNDER BOARD for WINDOWS
- PRO AUDIO SPECTRUM 16
- SPECTRUM PLUS

FUSION CD

Calendar Of Events continued

San Francisco. Abacus Training. Call: (415)974-7200.

March 25 Beginning QuarkXPress Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 25 Intermediate Word (For Macintosh) Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 25 Using FileMaker Pro Class. San Francisco. MACcess Computer. Call: (415)338-1975.

March 25 WordPerfect Desktop Publishing Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 25–26 Bridges, Routers, And Inter-Networking Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

March 25–26 HyperCard Stack Development Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 25–26 Local Area Networks: LANtastic To Novell Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 26 Advanced FoxPro 2.0 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 26 Beginning Persuasion Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 26 Intermediate Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 27 Build & Upgrade An IBM PC Clone Seminar. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 27 How To Build Your Own 486 PC Computer For Under $770 Class. Napa. Napa Community College. Call: (707)253-3010.

March 27 Intermediate Claris Works Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 27 The Intelligent Office Seminar: Multimedia Networked Information Management Within A Windows Environment. San Francisco. UltraVision. Call: (415)863-8407.

March 29 Intermediate Word (For Macintosh) Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 29 NetWare For The User Class. San Francisco. Abacus Training. Call: (415)974-7200.

March 30 Beginning Approach Class. San Francisco. New Horizons. Call: 1-800-999-6954.

March 30 Beginning Persuasion Class. Walnut Creek. New Horizons. Call: 1-800-999-6954.

March 30 Macintosh Network Administration Class. San Jose. Abacus Training. Call: (415)974-7200.

March 30–31 4th Dimension Class. San Francisco. Abacus Training. Call: (415)974-7200.

APRIL

April 2 Software Licensing Agreements Seminar. San Jose. Center for Advanced Professional Development. Call: (714)261-0240.

April 3–4 NetWare System Administration Course 1. Oakland. MIS Services. Call: 1-800-300-4MIS.

April 10 Upgrading To NetWare 4.0 For 3.11 Professionals Course. Oakland. MIS Services. Call: 1-800-300-4MIS.

April 13–15 Client-Server Workshop. San Jose. DCI. Call: (508)470-3880.

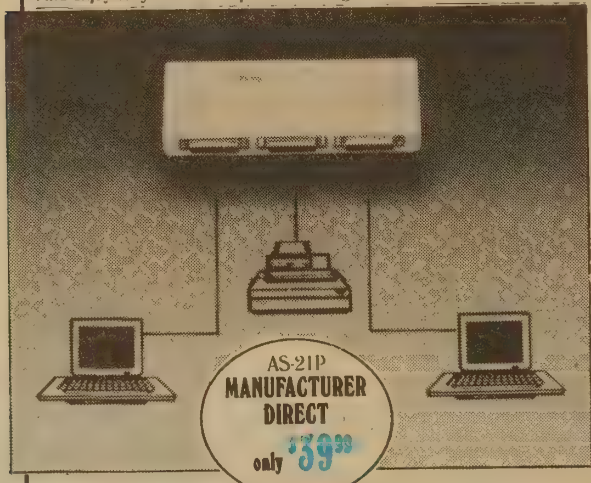
April 15–16 Windows Programming Using C++ Seminar. Santa Clara. Boston University. Call: (508)649-4200.

STONY
THE PERFECT CHOICE

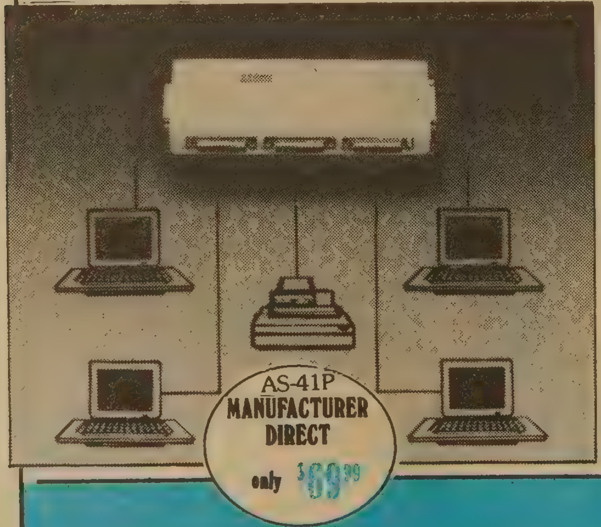
AUTOMATIC PRINTER SHARING
FOR AS LITTLE AS
$18⁰⁰ PER COMPUTER
MANUFACTURER DIRECT

ORDER NOW
And get a FREE set of connector cables for a Limited time only

2 COMPUTERS TO 1 PRINTER
Connect 2 terminals to the same printer for as low as $19 per computer. And enjoy fully automated printer sharing.



4 COMPUTERS TO 1 PRINTER
Connect 4 terminals to 1 printer for less than $18 per computer. Enjoy fully automated reliable printer sharing with absolutely no cable juggling.



Buy direct from the manufacturer at tremendous savings. No dealer mark up.No middleman No hidden costs. Stoney has been manufacturing high quality printer sharing switches and other computer products internationally for a decade. Our direct market approach allows you to take advantage of wholesale prices without sacrificing quality or service. All of our print share switches come with a complete 1 year parts and labor warranty. And they come complete.There is nothingelse to buy.

KEY FEATURES INCLUDE:
- NO MORE CABLE JUGGLING
- FULLY AUTOMATIC
  just plug in and use
- ALL INCLUSIVE
  no additional parts to buy
- NO MOVING PARTS
  nothing to break or lose
- RELIABLE
  a decade of use—no bugs
- COMPACT AND STYLISH
  durable beige plastic case, mountable anywhere
- COMPREHENSIVE WARRANTY
  1 year parts and labor
- NO POWER REQUIRED
  functions as a part of your system
- EASY TO INSTALL
  just plug in and use
- SUPPORTS ALL PARALLEL PRINTERS
  no compatibility problems—supports laser printers too
- HIGHEST QUALITY AVAILABLE
  built with the best materials to assure long life
- LOW PRICE
  don't get soaked!

UNITED BUSINESS MARKETING
100 Ruby Lane, Vallejo, CA 94590-8193
DEALER INQUIRIES WELCOME
TEL: (707) 642-8342 • FAX: (707) 642-8645
INCENTIVE PROGRAMS AVAILABLE

USER GROUP NETWORK

BULLETIN BOARDS

RESOURCE LISTING CHANGES

As electronic bulletin boards continue growing, system operators are adding phone lines that include additional area codes. Beginning with issue #100, *MicroTimes* introduced a "Multi-Zone" category for BBSes with access phone numbers in multiple area codes.

Thank you,
MicroTimes staff

MULTI-ZONE

Fantasy Network. (408)985-1529, (408)732-4908, (415)365-7002, (415)321-3661, (415)573-1063, (415)244-9218, (415)928-4781, (510)797-4101. 24 hrs., Multiuser, interactive D&D style fantasy adventure game. Chatting, 8 nodes. [Exp. #107.]

First Online. (408)247-1717, (415)598-0398, (415)992-3780, (510)254-5455. Over 30,000 files, 4.2GB, PC-SIG library, adult files. PC and compatibles. [Exp. #108.]

HoloNet Internet Access BBS. (510)704-1058; call for other nationwide numbers. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Internet: telnet, FTP, IRC, MUDs. 3500+ Usenet groups. Free demo. [Exp. #108.]

Interactions BBS. (408)258-8913, (415)469-5510, (510)832-0560, with numbers from Richmond to Fremont. 12-lines, friendly chat (over 18 only), two-week free trial. Sysop: C. Watson. [Exp. #107.]

Lambda. (415)572-2591, 755-9439, (510)268-9891. Adult, gay/lesbian, all are welcome. Email, chat, matching. Free. [Exp. #106.]

Portal Communications. (408)725-0561, (300–2400); (408)973-8091, (9600–57,600); (415)965-8059, (300–57,600). Worldwide X.25 online, shell, BBS & UUCP connections. Voice: (408)973-9111. [Exp. #107.]

Pro-Line BBS. (408)226-3880, (415)390-0763, (510)790-2923. 24 hrs. Chat, matchmaking, 1GB storage, database lifestyles, jobs online, email, and more. [Exp. #108.]

Public Domain Software Exchange. (415)571-6911, (707)444-9203. 8-N-1, 24 hrs., 1200/2400. Multiple message areas, large file library, chat, two lines. [Exp. #106.]

The Road Not Taken. (415)206-1638, (510)848-5248. Active message bases, friendly. Free. [Exp. #106.]

209

BerthaBoard. (209)823-0093. 1200–14,400. Two lines, 5.2GB, 70,000 files, lrg. msg. base. [Exp. #108.]

408

A32 Macintosh User Group BBS. (408)263-0299. 24 hrs., 2400. Second sight, members only. Voice: (408)263-0398. [Exp. #108.]

Amateur Action BBS. (408)263-3393. 8-N-1, 1200/2400/9600. 100% Adult Amateur GIF files, eight lines. [Exp. #107.]

Amiga (The Dungeon) BBS. (408)384-6370. 24 hrs., 1200/2400. Games, files, info on Amiga viruses, some IBM files. Sysop: Garnett Sanders. [Exp. #106.]

Apple Byte GS. (408)578-3201. 1200/2400/9600. Apple II Support, member FVNet, running Metal/FutureVision, 685MB. Sysop: Jim Buchanan. [Exp. #108.]

Atlantis BBS. (408)377-8510. 8-N-1, 24 hrs., 2400. Major BBS, multiplayer games and door games. Free limited demo accounts. Subscription: 25¢ hr. [Exp. #107.]

Bare Bones BBS. (408)272-2173. 8-N-1, 24 hrs., 9600. Two lines, Mac file transfers. Free, instant validation. Sysop: L'il John. [Exp. #106.]

BayNar-Net. (408)926-8547. 24 hrs., 2400. Model rocketry, IBM programs, NAR affiliated, family oriented, NAR affiliated. Sysop: Phil Hayton. [Exp. #108.]

The Beggar's Tomb. (408)243-TOMB. GIFs, stories, and animation for adult orientations. Sysop: The Grim Reaper. [Exp. #107.]

Blue Caller BBS. (408)379-0547. 2400. Dedicated to the working class. Friendly and free. Sysop: Bob Baker. [Exp. #107.]

Blue Smoke BBS. (408)265-4600, 269-4127. 8500+ files on CD-ROM, Fido, monthly online game contests. Sysop: Masque. [Exp. #106.]

board8. (408)338-7052, 338-7954. 24 hrs. Full network news and worldwide mail via UUCP. Free. [Exp. #107.]

Burn This Flag. (408)363-9766. 1200/2400/9600/14,400. Esoteric text files and a message sysstem for closet luddites. No fee. [Exp. #107.]

Careers Online. (408)248-7029. 1200/2400/9600/14,400. Online job listing, resume fax service. Free to all. [Exp. #106.]

Casa Del Cyborg. (408)457-2595. Mac programming, VR, sci-fi, politics, NASA, smart drugs, OneNet msg bases. Sysop: Curt and Emil. [Exp. #108.]

CBORN. (408)262-7876. 8-N-1, 1200/2400. Classified business opportunity research net. Sysop: Leo Bert. [Exp. #106.]

Cruzio. (408)423-9995. 8-N-1, 1200/2400/9600. Santa Cruz county email, USENET and scruz newsgroups, databases, files, MUD/chat. Sysop: Peggy Dolgenos. [Exp. #106.]

Dating Tree BBS. (408)946-1431. 16 lines, online chat, email, matchmaking, and more. Since 1988. Sysop: Ima Gnome. [Exp. #107.]

DC-To-Light. (408)262-5150. 8-N-1, 24 hrs., 300/1200/2400/9600. MS-DOS, CAD, UNIX, WIN, LAN & HAM: Conferences and email. Sysop: Fred Townsend. [Exp. #107.]

The Electric Pages. (408)253-4280. 300/1200/2400. Commercial and private advertising. Select by category or key words. Voice: (408)253-1709. Sysop: Contemporary Communications, Inc. [Exp. #107.]

The FoxTail Inn. (408)778-5688. Dedicated to the Equestrian community. Fidonet/RBBSnet/Internet. Morgan Hill. [Exp. #108.]

Fun Seekers. (408)379-0958, 379-9680. 8-N-1, 24 hrs., IBM utils, games, adult, Win, Mom, kids. Designed with the family in mind. [Exp. #106.]

Hard Core BBS. (408)246-3811. 24 hrs., 1200/2400/9600. Music-oriented board, w/ gaming files, online games, great msgs. Free trial. Sysop: Merlin. [Exp. #108.]

Higher Powered BBS. (408)737-7040. 2400–16,800. Multiline, voted in Top 100 BBSes in World. Over 500 ILink, RIME, SmartNet, Intelec, SFNet conferences. [Exp. #107.]

The Holodeck BBS. (408)248-0869. 1200/2400/9600/14,400. Online games, Fidonet, IBM files, and GIFs. Home of W&W Communication Doorware. [Exp. #106.]

Infoserve Connections. (408)243-2102. 8-N-1, 24 hrs., 2400. UUCP/Usenet/email for DOS, Mac, and 386/UNIX. Sysop: B. Oesterreich. [Exp. #106.]

International TeleText Communications, Inc., (ITC). (408)735-1803. [Exp. #107.]

The I/O Temple. (408)427-3453. 8-N-1, 1200–14,400. Msg bases, online games, and more. FidoNet 1:216/513. Sysop: Armand. [Exp. #106.]

The Land Of Garg BBS. (408)378-5108. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Local msg posting on first call, validation req for USENET posting, file access, Internet mail. Sysop: Bob Van Cleef. [Exp. #108.]

The LaserBoard. (408)268-4863, 268-6323. 24 hrs.,

Continued

Amateur Action BBS

Amateur Adult GIF Files!
Over 12,000 files on line!!
New Member Bonus!!
FREE Amateur Video!!

VISA MasterCard

(408) 263-3393
8 Lines
US Robotics Dual Standard
Modem 1200/2400/9600
V.32/14400 HST

BAY AREA BBSes

By Kathleen Creighton

Peapod: The Latest In Online Grocery Shopping

Is online grocery shopping the computer feature of the future?

There are doubters. When Prodigy came online in the Bay Area in 1988, those of us who would have liked online grocery shopping could only look longingly at the virtual aisles of the Kroger store in Atlanta. But when San Francisco's Grocery Express signed up with Prodigy, the problems with online grocery shopping became clear: Prodigy was slow; ordering groceries online was torturous and given to interruption by line noise (in which case the unsaved grocery order was lost completely); prices on the order screens didn't match touted sales prices. It was faster and easier to order groceries by phone from the paper catalog. Grocery Express, which featured relatively inexpensive delivery and expensive groceries, was never able to shake its carriage-trade image locally, and although it expanded to some neighborhoods down the Peninsula and in the East Bay after it joined with Prodigy, it folded in the fall of 1990.

The few other online grocery services around the country also subsequently left Prodigy. Prodigy spokesperson Brian Ek attributes the failure of online shopping, in part, to marketing surveys which claimed a higher interest in the service than ever materialized.

When prospective Prodigy users completed market surveys in 1987 about a hypothetical online service (a blind survey by mail in which I was coincidentally included), we had no experience with various exotic online offerings, of which grocery shopping was one. It certainly sounded good, but had problems potential users didn't anticipate. Prodigy's Ek says that keeping a five thousand-item database updated, implementing price increases, and posting sale prices turned out to be a gargantuan project for the grocers. And it was possible for the user to craft a lengthy order, only to have it disappear into the ether as a result of Prodigy's inability to handle line noise adequately.

Grocery Express left Prodigy and went bankrupt in the fall of 1990. Safeway stepped into the home delivery gap by offering Shopper's Express delivery service to a large number of neighborhoods throughout the Bay Area. Not long after this, they attempted to market their first iteration of online shopping, a bar code catalog and reader setup called Scan Phone, which plugged directly into the phone line and required no telecomm expertise. There was no added value over phoning in an order to customer service, and Scan Phone was greeted less than enthusiastically.

Safeway next associated itself with 101 Online, an attempt at Bay Area online service penetration by France Telco's Minitel. But 101 Online required the use of a dedicated Minitel terminal which computer users found clunky, and 101 Online never reached more than a few hundred users at its peak.

Peapod is the latest iteration of Safeway's attempt to provide online grocery shopping to the masses, and this third foray into the telecommunications-based market could be the charm. Available now only to San Francisco users, the $49.95 per year membership, offered free to former Shopper's Express home delivery customers, includes easy-to-install software, subsequent updates, and online coupons. (Membership to shop Peapod by voice phone is $19.95 per year.)

The software is written to run smoothly on an 8088-based PC with a 1200-baud modem in distributed processing mode (computing power is provided by the user's computer, not a distant mainframe). It skips along on an 80286 at 2400 baud, and also accepts high-speed modem connec-

BBSes

14,400 RIME, local TNET, and Wildnet conferences. Call and download the latest file available and best service around. Free. Sysop: Shawn Higgin. [Exp. #106.]

Lynn-Western Newswires. (408)778-5994 & 778-9656. 8-N-1, 24 hrs., 1200/2400. FidoNet 1:143/304. Professional information on technology, management, and worldwide investment news. Stock market data online. [Exp. #106.]

Mail Stop. (408)257-1919. 8-N-1, 24 hrs., 300/1200/2400. Free, private email and SIG system. Internet mailboxes avail. [Exp. #106.]

The Mana Zone. (408)986-0790. 24 hrs., 9600. The place for Imperium/Strategy users everywhere. Excellence in gaming. Free. Sysop: Darin Thurman. [Exp. #108.]

Missing And Disabled BBS. (408)257-8522. 2400/9600/14,400. Free access to all, GIFs, trek, etc. Over 5000 files. [Exp. #108.]

Monterey Gaming System. (408)655-5555. 300/1200/2400/9600. 16 lines, conferences, email, msgs., custom games. Free. [Exp. #106.]

Moose Is Loose BBS. (408)773-9573. Not many files but the silliest message base in Sunnyvale. Sysop: John Giever. [Exp. #106.]

Mountain Retreat. (408)335-4595. 2400–14,400. 660MB, Fidonet member, specialty Turbo Pascal. Sysop: John Jamieson. [Exp. #106.]

The Mud Hole BBS. (408)865-1621. 14,400. Great door games, net and local mail, no files. [Exp. #108.]

NightLog BBS. (408)655-1096, 655-8294. 24 hrs., 300–16,800. DOS, Windows, OS/2, adult files, 17 lines, 4.9GB. Sysop: Karl Van Lear. [Exp. #108.]

Night Watch BBS. (408)249-0805. 14,400. IBM. Free Access. Sysop: Carl Bacani. [Exp. #107.]

Pacific Exchange BBS. (408)946-8561. 12 lines, 50,000 IBM/Windows files, adult files, online news, games, and more. [Exp. #108.]

Paradise City BBS. (408)280-6630. 8-N-1, 1200–57,600. New! Tons of files and doors. Free full access on first call. Sysop: Jim Reed. [Exp. #106.]

Positive Image Studio. (408)270-8996, 270-8916. 8-N-1, 24 hrs., 14,400. Mac and IBM graphics, animations, sounds, utils, adult material, 4GB. Memberships avail. [Exp. #108.]

Ring Of Fire BBS. (408)739-8753. BBS for United Sysop's Association and Silicon Valley Novell Users Group. Since 1982. Hum for USAnet. Sysop; Bill Strouse. [Exp. #108.]

Ring Zero BBS. (408)720-8944. 24 hrs., 1200/2400/9600/14,400. The professional's information exchange. Free access. [Exp. #107.]

The Rising Storm. (408)739-8693. 8-N-1, 14,400. Emergency prep., firearms, politics, and more. Survival echos and files. Sysop: Kirk DeHaan. [Exp. #107.]

The Roadkill Grill. (408)985-0213. 1200/2400. Fidonet/OtherNets. Two nodes, lots of loony people. Free access. Sysop: Bruce Wolfson. [Exp. #108.]

Salted Slug. (408)454-9368. Just say yes to the most active msg. system in Santa Cruz. NIRVANAnet. [Exp. #107.]

San Jose Connection. (408)956-8819. 8-N-1, 24 hrs., 300/1200/2400/9600. Fidonet 1:143/111. Many msg areas, files, job listings, all orientations, adult, and teens. Free. [Exp. #108.]

Second Generation BBS. (408)980-8830. Technical support and chat by New Dimensions. Sysop: Lou. [Exp. #107.]

The Shrine BBS. (408)747-0778. Magick, religions, and sex. Adult and women only areas by request. Free system. Sysops: Junell Zzz and Tom Zoch. [Exp. #108.]

The Shuttle BBS. (408)998-2659. 24 hrs., 1200/2400/9600/14,400. Full multimedia support BBS. Mouse, VGA, and sound support. Sysop: Michael Vedda. [Exp. #108.]

The Silicon Connection. (408)492-9700. 24 hrs., 300/1200/2400. Electronic PenPal Network, 16 lines. [Exp. #107.]

Smorgasbord BBS. (408)722-9101. Aptos, Watsonville, Gilroy. 12,000 files, matchmaking, games, friendly. [Exp. #107.]

Spectral BBS. (408)443-8740, 443-9781. 24 hrs., 1200/2400/9600/14,400. Free D/L's, 3.2GB+ adult files, doors, and more. [Exp. #106.]

Success BBS. (408)267-8325. 8-N-1, 1200/2400. S. Bay Entrepreneurs Assoc. BBS. Business opportunities, job shop, buy/sell, ads, personals. Networking for success. Free. [Exp. #106.]

The Support Network BBS. (408)259-0297. 8-N-1, 1200/2400/9600. Community computing for Santa Clara County. Sysop: Frank Arnold. [Exp. #106.]

Sure 2B Famous. (408)866-2659. 8-N-1, 2400. TreNET/VirtualNET, Real Estate photos and listings, professional directory. Sysop: Guy W. Tessum. [Exp. #107.]

The Tech BBS. (408)279-7199. 8-N-1, 5:30 pm–9:30 am, PST. 300–19,200. BBS run by staff and volunteers of The Tech Museum of Innovation. [Exp. #108.]

Texas Instruments PCs. (408)296-2503. 24 hrs., 2400. Message base, user group info & software for TIPC. Sysop: Mark Cantrell. [Exp. #107.]

Thunder Mountain BBS. (408)266-4553. 8-N-1, 2400. Four lines, chat, files for all, email, matchmaker—all free. Sysop: SysFlyer. [Exp. #108.]

Tommy's Playhouse BBS. (408)942-9555. 24 hrs., 14,000. Fidonet, Echomail, Adult and teen area. Trade War door, files, utils, GIF, BMP. [Exp. #107.]

Uncensor BBS. (408)736-6694. 8-N-1, 24 hrs., 1200/2400. Lifestyle bulletin, adult chat, email, library (18 over only). Reg. required. Sysop: Dave. [Exp. #106.]

The Village. (408)229-7060. 2400/9600/16,800. Over 100 online games, 800MB. Full access with first call. Sysop: Michael Wilson. [Exp. #106.]

The Virtual Reality BBS. (408)246-5434. 8-N-1, 1200/2400. Games, files, and Net mail coming soon. Free. Sysop: Jim Busby. [Exp. #107.]

415

1st Pacific Computer & Software Exchange. (415)759-6341. 24 hrs., Buy, sell, trade, new, used. Quick D/L of all info & list. Free. Voice: (415)759-6070, 2–6 pm. [Exp. #106.]

5 Star BBS. (415)681-1172. 8-N-1, 24 hrs., 1200/2400/9600. Music, GIFs, games, adult, animation, shareware files. Sysop: Peter Lau. [Exp. #106.]

ABACUS (Atari Bay Area Users Society). (415)587-8062. 300/1200/2400. For 8-bit and ST/TT users. [Exp. #106.]

AHA Hydrogen BBS. (415)494-3316. 8-N-1, 1200/2400/9600/14,400. Alt. energy info—prosperity without pollution. [Exp. #107.]

AIDS Info BBS. (415)626-1246. 8-N-1, 24 hrs., 1200/2400. 32MB dBASE with index, Thesaurus keyword search, online help instructions (no chat). Topics on AIDS including read/write discussions, periodicals, news articles, resource contacts, private email between users. Sysop: Ben Gardiner. [Exp. #106.]

ALIEN BBS. (415)359-8774. 8-N-1, 24 hrs., 1200–14,400. Amiga/IBM/Mac info. Adult boards w/registration. Free. Sysop: Ed Vandehey. [Exp.

Continued

Windows OnLine
FREE PREVIEW!
13 lines, USR-DS
• 8,500 Windows files, 50 new files every day!!
• Publisher of the WinOnLine REVIEW
510) 736-8343 BB

GARLIQUE GRAPHICS
WORLD FAMOUS GIF'S
ADULT CD'S
FREE CATALOGS
SUBSCRIBE ON-LINE
MasterCard VISA AMEX
408-847-0665

NTELOG
17 Nodes BBS
OS2 ○ DOS ○ Windows
Graphic Images
Internet ○ Usenet
Rime ○ ILink Email
(408) 655-1096 2400 bps
(408) 655-8294 v.32bis
(408) 655-8297USR HST
Register Online
MasterCard VISA

PACIFIC EXCHANGE
"Full Featured BBS"
- 50,000 DOS/Window files
- 10,000 Adult Files
- 12 Incoming Data Lines
- USA Today News
- On-Line Shopping Mall
- Support to 38,400 bps
- User Interactive Games
- Teleconferencing
- 68 Different SIG's
- Classified Ads & More
Full Access - $25/Year
VISA
408 - 946 - 8561

BBSes continued...

tions. The software comes with a Member Guide, a quick-reference card, and an application for Checkfree, should the user decide to use it. (Payment is made by check only; credit cards and food stamps are not accepted.)

The member guide points out that the first few orders will take the longest, as the Peapod software is developing a database of the user's personal shopping preferences. After the first few orders, the personal shopping list for repeat orders will be fairly complete, and shopping should take little time.

Instructions on the screen are clear, and shopping is fairly intuitive. The user can shop either by "aisle" or by searching the database for product type. Sale items are noted, as are unit prices, one of Peapod's most powerful features. The Peapod database interfaces directly with Safeway's own database, so updates are automatic, and the user's personal shopping list is updated appropriately as well. For the nutrition-conscious, the database offers a field for nutrition information, not yet in use. Peapod also handles coupons and shopping circular specials by issuing a credit for the next grocery order.

Shoppers will want to make the most of the feature that sorts categories of groceries by unit price, something difficult to do at the store. For example, using Peapod's sort key it was easy to determine that purchasing two 16-oz. cartons of Lucerne cottage cheese on sale for $1.19 each, or $2.38/qt., was cheaper than buying one 32-oz. carton at a unit price of $2.89/qt. Similarly, a sort on the category "aspirin" determined that the best buy listed was the 100-tablet bottle of Bayer at a unit cost of $0.60 for 10 tablets. Once the fifteen thousand-item database is complete, including Safeway house brands, this feature alone could be worth the annual membership for people on tight grocery budgets but with no time to comparison-shop by unit price in the aisles. And there is nothing to prevent the shopper from comparison shopping, printing out a grocery list, and going to the store instead of paying $9.95 for home delivery.

Peapod could use a master list of sale prices, since Safeway tends to keep items on sale two or more weeks instead of the usual one week, but Peapod general manager Andy Cohen states that one file would be too big for a 640K PC to handle with Peapod software. Frugal shoppers will want to check the Safeway circular to make sure they're catching all of the sales, since it's easy to miss a good sale on an item not specifically on the personal shopping list because the sale item is a different brand, for example, from the one the user generally buys.

After several days of wandering around Peapod, I finally modemed in my order and chose the day and time most convenient for delivery. (Delivery times are first-come, first-served, and there is no delivery on Monday and Tuesday). When I placed my order, I knew how much the grocery bill would be, how much of that was taxable, and the order total with the $9.95 delivery charge added on. Peapod will also deliver prescriptions from the Safeway pharmacy, Muni and BART passes, and stamps, and will pick up film for processing at Safeway for an additional $1 service charge.

Although Peapod's grocery database isn't quite finished yet, and there is no one master list of store sale items (shop by aisle to check!), Peapod is a terrific online application for busy and frugal shoppers. (Peapod is offering San Francisco *MicroTimes* readers the Peapod online sign-on kit for half-price—$25—until March 31, 1993. Mention that you read about Peapod in this column.) ■

Peapod, 1426 Fillmore St., San Francisco, CA 94115
(415)929-1600

HITRON SYSTEMS

STOP SEARCHING AROUND!
HITRON HAS THE RIGHT SYSTEM AT THE RIGHT PRICE!!

LIFETIME LABOR WARRANTY!

HITRON FILE SERVER

486DX2-66 MHz EISA
$2659
486DX-50 MHz EISA
$2559
486DX-33 MHz EISA
$2299

- 64K CACHE EXPANDABLE TO 256K
- 8 MB EXP TO 32 MB
- 1.2 MB FDD
- 340 MB SCSI HARD DRIVE
- MGP DISPLAY CARD
- 14" MONOCHROME MONITOR
- FULL TOWER CASE W/250 PS
- ADAPTEC SCSI EISA CONTROLLER
- I/O 2 SERIAL/1 PARALLEL/1 GAME PORT
- 101 ENHANCED KEYBOARD

FOR MORE OPTIONS, PLEASE CALL

HITRON SUPER IDEAL SYSTEMS FOR CAD & WINDOWS

VESA LOCAL BUS

MICRONICS MOTHERBOARD

486DX2-66 MHz
$1999
486DX-33 MHz
$1699

- 64K CACHE EXP TO 256K
- 4 MB RAM EXP TO 32 MB
- 1.2 MB FDD
- 170 MB IDE HARD DRIVE
- 32 BIT 1 MB VIDEO CARD w/ET 4000
- 14" SVGA COLOR MONITOR w/.28dp (1024 X 768)
- MINI-TOWER CASE w/200 P.S.
- 32-BIT 2FDD/2 HDD CONTROLLER
- I/O 2 SERIAL/1 PARALLEL/1 GAME
- 101 ENHANCED KEYBOARD
- HI-RES SERIAL MOUSE

HITRON HIGH PERFORMANCE SYSTEMS

486DX2-66 MHz
$1629
486DX-50 MHz
$1539
486DX2-50 MHz
$1449
486DX-33 MHz
$1279

- 64K CACHE EXP TO 256K
- 4 MB RAM EXP TO 32 MB
- 1.2 MB FDD
- 120 MB IDE HARD DRIVE
- SVGA DISPLAY CARD w/512K
- 14" SVGA COLOR MONITOR w/.28dp (1024 X 768)
- MINI-TOWER CASE w/200 P.S.
- 2FDD/2 HDD IDE CONTROLLER CARD
- I/O 2 SERIAL/1 PARALLEL/1 GAME
- 101 ENHANCED KEYBOARD

BLOWOUT SPECIALS!

486SX-33 MHz
$1089
486SX-25 MHz
$1029
386DX-40 MHz
$925
386DX-33 MHz
$925

- 64K CACHE EXP TO 256K
- 4 MB RAM EXP TO 32 MB
- 1.2 MB FDD
- 120 MB IDE HARD DRIVE
- SVGA DISPLAY CARD w/512K RAM
- 14" SVGA COLOR MONITOR w/.39dp (1024 X 768)
- MINI-TOWER CASE w/200 P.S.
- 2FDD/2 HDD IDE CONTROLLER CARD
- I/O 2 SERIAL/1 PARALLEL/1 GAME
- 101 ENHANCED KEYBOARD

MONTHLY SPECIALS

SUPER SURGE PROTECTOR
Verasatile Instrument Protector (VIP)

- Automatically Turns Off & On Your Computer When Abnormal Line Conditions Occur
- Automatically Reboots Your Computer When Conditions Return To Normal
- Extends Your Computers Life & Prevents Extensive Damage From Excessive Currents

ONLY **$96**

HITRON NOTEBOOKS

- 60 MB HARD DISK
- 1.44 MB FLOPPY DRIVE
- VGA RESOLUTION
- I/O-1 SERIAL/1 PRINTER PORT
- EXT KEYBOARD AND VGA CONNECTOR
- CARRYING CASE
- DOS 5.0 AND WINDOWS 3.1

FOR MORE UPGRADE OPTIONS CALL!

386SX-25 w/2 MB	$1195
386SX-25 w/4 MB	$1245
386SL-25 w/2 MB, 16K Cache	$1495
386SL-25 w/4 MB, 16K Cache	$1565

LIFETIME TECH SUPPORT!

NETWORKING AVAILABLE!

COMPLETE LINE OF NETWORKING SOFTWARE AND HARDWARE, SOFTWARE INSTALLATION

CONNECT YOUR NOTEBOOK INTO YOUR NETWORK FOR LESS THAN $250! CALL FOR DETAILS

NETWORKING START-UP KITS:
- 386 WORKSTATIONS
- NETWORKING CARD & HUB
- NETWORKING SOFTWARE & INSTALLATION

AS LOW AS $1200

FOR MORE INFORMATION PLEASE CALL US!

CALL FOR PERIPHERALS AND CUSTOM CONFIGURATIONS

*LIFETIME LABOR WARRANTY
*LIFETIME TECH SUPPORT
*30 DAYS MONEY BACK
*NATIONWIDE ON-SITE SERVICE AVAILABLE
*CORPORATE PO'S WELCOME
*CORPORATE LEASING AVAILABLE

FOR MORE OPTIONS OR INFORMATION PLEASE CALL:

HITRON SYSTEMS

HITRON SYSTEMS
3170 EL CAMINO REAL
SANTA CLARA, CA 95051
(BETWEEN LAWRENCE EXP. & SAN TOMAS EXP.)
TEL: (408) 261-2695 • Fax: (408) 261-2698
Prices Subject to Change w/o Notice **MON-FRI 9-6, SAT 10:30-5**

#107.]

Back Door For Bi/Straight Men & Women. (415)756-8452. 8-N-1, 24 hrs. 10 lines, 18 and over only. [Exp. #107.]

Back Door For Gay/Bi Men. (415)756-6238. 8-N-1, 24 hrs. 33 lines, alt lifestyles, 18 and over only. [Exp. #107.]

Back Door For Lesbian/Bi Women. (415)756-8426. 8-N-1, 24 hrs. 10 lines, alt lifestyles, 18 and over only. [Exp. #107.]

BAHUG BBS. (415)326-4486. 8-N-1, 24 hrs., 300/1200/2400. DTP info and help for Heath/Zenith machines. Free. Co-Sysops: Freeman Bradford and Ed Hayes. [Exp. #107.]

Bay City Reader Online. (415)552-3961. 2400. SF's online magazine—politics, literature, plays, short stories. $25 subscription. [Exp. #107.]

Bay Link BBS. (415)931-0583. Multiline chat, group & head-to-head games, dating. Sysop: Brian Martin. [Exp. #108.]

Bay Windows BBS. (415)755-2939. 10–11 pm, 2400. DOS, utils, email. No reg fee, no ratios. Sysop: Judy. [Exp. #107.]

BBS Of San Francisco Apple Core. (415)563-8652. 24 hrs., 2400. Lots of fun, supports Apple II and GS computers. [Exp. #106.]

The Board With No Name North. (415)558-8866. 8-N-1, 24 hrs., 300/1200/2400. Gay & Lesbian community, chat, ONMIChat, email, library w/ GIF's & Fantasy text. [Exp. #107.]

California ConneXion Partyline. (415)927-2739. 8-N-1, 23.5 hrs., 300/1200/2400/9600/14,400. Nine lines, 400MB, group chat, worldwide network, 40+ pubs, matchmaking, adults only. Reg required. [Exp. #106.]

California Online! (415)331-4081. 14,400. We've moved! Wide local calling area. Huge file database, chat, multiple international nets. Free & reg access. Sysop: Jim Thornson. [Exp. #107.]

Campool BBS. (415)948-8928. 9600. IBM/MS-DOS file exchange, three lines w/2,800 files. Los Altos. Sysop: Andy Bajka. [Exp. #106.]

The Classifieds BBS. (415)665-7918, 665-2475. 8-N-1, 24 hrs., 1200/2400/9600/14,400. For sale, echomail, files, and more. [Exp. #107.]

Clipboard. (415)239-0454. 8-N-1, 3pm–11pm. For Clipper and xBASE programmers and developers. 100MB+ files. [Exp. #106.]

ComPUCall. (415)703-1297. 7-E-1, 1200/2400. California's Public Utilities Commission's calendars, decisions, releases. [Exp. #107.]

Computer Show Hotline. (415)340-9370. 8-N-1, 1200/2400. Latest Computer Show info. Complete list of dates, times, locations, and directions. [Exp. #108.]

Corner UNIX. (415)564-8750, 564-4345. 8-N-1, 1200/2400/9600/14,400. San Francisco Public Access UNIX. Sysop: Furryeel. [Exp. #108.]

Covert Operations. (415)897-1880. 24 hrs., 1200/2400/9600. Wildcat 3.55, growing Marin BBS, WildNet, adult GIFs. Free. [Exp. #106.]

DataFax BBS. (415)390-9577. 8-N-1, 24 hrs., 1200/2400/9600. Tech support for Calculus EZ-Tax and Sizcomp modems. Free access. Sysop: Tod Wooton. [Exp. #107.]

DPNet BBS. (415)788-8663. 8-N-1, 24 hrs., 300/1200/2400/9600. Free consultant job listings, Fidonet conferences, professional computing organizations, and technical SIGs. All welcome. [Exp. #107.]

Dragon's Curse BBS. (415)383-9487. Sundays, noon–2 pm. 300/1200/2400. Games, doors, adult files, free. [Exp. #107.]

The Eagle's Nest. (415)892-7175. 8-N-1, 300/1200/2400/9600/14,400. Lrg file area on CD-ROM w/no ratio, many online doors. No fee. Sysop: Raymond Reding. [Exp. #107.]

The Elfspire Tome BBS. (415)595-2387. 1200/2400/9600. A fantasy role-playing G.M. resource bulletin board featuring role-playing, games, fantasy clipart, and more. [Exp. #107.]

Eye Contact BBS. (415)703-8200. 300/1200/2400/9600. Gay Men's issues, 354 lines, chat, matchmaker, over 20,000 files. Verification, 18 and over. Local access number nationwide. Sysop: Bill Montgomery. [Exp. #108.]

Fog City. (415)863-9697. 8-N-1. Gay & Lesbian community, chat, matchmaking, CD-ROMs, games, 2.4GB. Since 1986. [Exp. #107.]

Gateway Software BBS. (415)885-1392. 24 hrs., 1200/2400/9600/14,400. ASP shareware author, support BBS. Free access. Sysop: Philippe Rabergeau. [Exp. #108.]

Golden Gate Computer Society BBS. (415)927-1216. 24 hrs., 2400–14,400. 4 lines, toll free for SF, East Bay. Member of ILink & Baylink message networks. [Exp. #107.]

Graveyard Shift BBS. (415)923-9060. 14,400 Adult-oriented theme, GIFs, animation's, msg., texts. [Exp. #106.]

Griffin DataFast. (415)327-5156. 8-N-1, 24 hrs., 1200/2400/9600/14,400. OS/2, DOS & Windows files, messages. OS/2 FAQ Hardware at wholesale. Sysop: Scott Williams. [Exp. #107.]

Guideboard. (415)864-3858. 24 hrs., 300/1200/2400. Multiline, Cabbie's Guide to SF restaurants, doctors, auto repair, etc. Sysop: Dick Schwartz. [Exp. #107.]

Hispanic On-Line Access—HOLA. (415)252-0285. 8-N-1, 8:00 am–9:00 pm, 300/1200/2400. Hispanic issues, software, business, Latin America news. Free. [Exp. #108.]

IBBS West. (415)564-9996. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. PC and compatibles, utils., adult GIFs, CD-ROM w/10,000 files, free trial. [Exp. #108.]

Incipits Remote BBS. (415)359-2067, 359-2068. 1200–38,400. Tons of DOS, OS/2, and UNIX shareware. Distribution point for 386BSD PD UNIX and X11. [Exp. #108.]

InfoDude Communications. (415)855-9500. 24 hrs., 14,400. Teleconferencing, Forums. IBM, Windows, Mac, and Amiga files. Lrg adult area. Section for women only. Sysop: Joseph A. Jenkins. [Exp. #107.]

The Informer BBS. (415)468-6713, 468-9913. 24 hrs., 2400–14,400. CalNet, Intelec, FamNet, WindNet, Newlife Operating Systems, Tech Specs, conferences. Subscription/free. Sysop: John Custer. [Exp. #107.]

KALW—FM BBS. (415)641-4373. Political discussions, Human Rights Reports, and listener feedback. [Exp. #106.]

Lies Unlimited. (415)583-4102. 2400. Politics and polemics. NIRVANAnet. Instant access, no fee. [Exp. #107.]

MacDungeon BBS. (415)584-0216. 300/1200/2400. Mac, IBM files, XXXGIFs, anarchy. Free. Sysop: PumpkinHead. [Exp. #106.]

Marin County Net. (415)331-6241. 24 hrs., 2400–16,800. Aviation, sailing, weather, Fidonet conferences. Free. [Exp. #106.]

Media Literacy BBS. (415)621-5156. 8-N-1, 24 hrs., 300/1200/2400. Online resources for educators and others interested in media education. Sysop: Kathleen Tyner. [Exp. #106.]

The MIDI & Multimedia Exchange BBS. (415)771-1788. 8-N-1. .MID/.MOD, .AVI, .FLI Libraries. Free access. [Exp. #107.]

The New Dork Sublime BBS. (415)864-DORK. Subliminal news for new dorks everywhere. NIRVANAnet node 9:900/10. Sysop: Demented Pimiento. [Exp. #107.]

The Pink Triangle. (415)921-7609. 8-N-1, 24 hrs., 2400. New Gay Men's BBS: issues, dating. [Exp. #106.]

The Play-Pen BBS. (415)897-3073. 8-N-1, 24 hrs., 1200–19,200. BBS-Chess, MarkMail. Free. Sysop: Paul Ward. [Exp. #107.]

Recovery BBS. (415)255-2188. 8-N-1, 300/1200/2400. AA, NA, Al-Anon/ACA, SLAA. Recovery and 12 Step Echos. Fido 125/9. Sysop: Rich Gorlin. [Exp. #107.]

The Rocking Chair Connection BBS. (415)364-7884. 24 hrs. Two nodes, files, net mail, 640MB online. Sysop: Frank Crispell. [Exp. #108.]

The Rolling Thunder BBS. (415)593-9790. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. IBM, GIF, and sound files. Lots of Doors, Star Trek and BSA conferences. Sysop: Kevin and Scott. [Exp. #106.]

Salt And Light. (415)368-0790. 8-N-1, 1200/2400. IBM, Biblical understanding—files and question area. Sysop: Peninsula Christian Center. [Exp. #107.]

San Francisco PC Users Group BBS. (415)621-2609. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Sysop: Richard Couture. [Exp. #107.]

San Francisco Robotics Society Of America BBS. (415)648-6427. 8-N-1. Software and msgs for robot building enthusiasts. Sysop: Brad Smallridge. [Exp. #108.]

SearchNet International BBS. (415)873-5336. Gov't files, FCC watchdog, free speech, politics, nonprofit group material accepted. Voice: (408)236-3706. Sysop: James P. Leonard. [Exp. #107.]

SF Cacophony Society. (415)776-5513. 8-N-1, 19:00–07:00, 2400. Adventures beyond the pale of mainstream society. Free. [Exp. #106.]

SF Net. (415)824-8747, 589-2194, 332-3923, (510)450-0155, 638-8644. Coffee House/Cafe Connection, 30 lines, chat, matchmaker, msg areas, Fido 1:125/824, UUCP Connection. [Exp. #106.]

Skeptic's Board. (415)572-0359. Science and fringe science. Internet/Usenet access. San Mateo. Sysop: Rick Moen. [Exp. #107.]

SMUG (Stanford-Palo Alto Mac User Group) BBS. (415)856-0210. BBS on Threshold 2000, uses Telefinder GUI. [Exp. #108.]

Space BBS. (415)323-4193. 10 lines, *Boardwatch* Top 10 BBS, 50,000 files, UPI News, etc. ASP Hub BBS site. Sysop: Owen Hawkins. [Exp. #107.]

Starnet Connections. (415)949-3133. 8-N-1, 24 hrs., 300/1200/2400/9600. Los Altos. Email, USENET, UNIX, and more. Sysop: Richard Mahn. [Exp. #106.]

The StrongHold BBS. (415)992-2860. 24 hrs., 1200/2400/9600/14,400. Files, messages, games. Calnet/Hogenet. Sysop: Chris Jong. [Exp. #106.]

Swizzle Stick—Macintosh. (415)589-4404. 1200/2400/9600/14,400. 2 lines, Kate Bush & foreign travel, 100 msg areas 600MB Mac files. Fidonet 1:125/110. [Exp. #107.]

Symmetrics BBS. (415)382-6679. 8-N-1, 24 hrs., 1200/2400. Membership, $10/yr. Online games, lots of shareware programs. [Exp. #108.]

The System. (415)369-5144. 8-N-1, 24 hrs., 300/1200/2400/9600. Accounting, AccPac, BPI, Simply, Telemagic, Novell networks, email. [Exp. #107.]

TECNET. (415)390-9279. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Two lines, technical help w/testing equipment, classified ads, graphical, new board. Extra for subscribers. Sysop: John E. Fisher II. [Exp. #106.]

TimeStream Historical/Gamers BBS. (415)666-0471. 300–19,200. For RPGamers, GMs, Cacophony, SCA, and FaireFolk. Fidonet, Shadownet, email. Historical interest group areas. Sysop: William Watters. [Exp. #106.]

Tomorrow's Order Of Magnitude. (415)961-9315. 2400. Serving inmates, patients, and reg'd voters in the South Bay. Sysop: finger-man. [Exp. #107.]

The Trade Center BBS. (415)340-7261. 24 hrs., 14,400. Games, utils., 600MB of GIFs, adult and general areas, conferences, and more. Sysop: Gabriel Turk. [Exp. #106.]

Uncle D's Directory. (415)364-3001. 8-N-1, 24 hrs., 1200/2400/9600/38,400. Software for deaf & education, msgs, file search, classified ads, offline mail, doorways. No fees. [Exp. #108.]

VA Listings. (415)744-7793. 24 hrs., 300/1200/2400. VA-owned homes for sale. Multiline. Sysop: David Piersall. [Exp. #108.]

Virtual Reality BBS. (415)661-7783. 8-N-1, 2400. Schedule of user group meetings; VR software; networking; all free. [Exp. #107.]

Welware Diversions Public UNIX. (415)826-0397. 8-N-1, 24 hrs., 1200/2400. Full Usenet news, eight lines. Sysop: Eric Swason (editor@wet.UUCP). [Exp. #107.]

Windows NT Online Support. (415)572-9661. 300/1200/2400/9600/14,400. MS Windows NT support, messages, files, WINNTNET. Sysop: Bruce Chester. [Exp. #106.]

Window World BBS. (415)931-0649. 24 hrs. For people who use Windows-type software. Info., shareware, chat. Sysop: Bob Cram. [Exp. #107.]

Zen Connection. (415)389-9245. 1200/2400/9600/14,400. Open to all Spiritual seekers. Meditation topics, living Masters, and events. Sysop: Premananda. [Exp. #106.]

510

& The Temple Of The Screaming Electron. (510)935-5845. 38,400. A safe haven for visionaries and paranoids, 100MB, NIRVANAnet. No fee. Sysop: Jeff Hunter. [Exp. #107.]

8-Bit Apple User Group BBS. (510)294-8052. 24 hrs., 300/1200/2400. Apple II ProDOS, DOS3.3, UL/DL, email. No fees. Sysop: Noel Anklam. [Exp. #107.]

AbysS Multiline Systems. (510)482-2992, 357-1974. World echos & Net mail, group & private chat, matchmaker. [Exp. #106.]

Activist. (510)532-6248. 1200/2400/9600/14,400. Files/msgs on politics, conspircy, technol, privcy, histry, philosphy, ethics, arts. Sysop: Walter Alter. [Exp. #108.]

Amador Valley High School BBS. (510)484-3005. 8-N-1, 24 hrs., 1200/2400. Free. [Exp. #107.]

Bay Area OS/2 BBS. (510)657-7948. 8-N-1, 2400/9600. OS/2 files and conferences. Free. Sysop: Greg Altman. [Exp. #106.]

BayView Graphics BBS. (510)799-6456. 8-N-1, 300–57,600. Graphics, telecommunications, & utils. BRRAnet, echo mail. Sysop: Bob Rider. [Exp. #108.]

Berkeley WWIV Chess BBS. (510)486-0795. 8-N-1, 2400. Chessmaster's corner, Fido International Chess Echo, USENET rec. games, chess. Sysop: Walter Wood. [Exp. #106.]

Blue Smoke CD-ROM BBS. (510)455-5587. 24 hrs., 2400/9600/14,400. Access 9000 files, fidonet, email, matchmaker. No ratio, free. [Exp. #107.]

Breaking Walls; Building Bridges BBS. (510)827-0804. 8-N-1, 24 hrs., 300/1200/2400. Gay/Lesbians, church, AIDS, community forums, news, counseling. Sysop: Deacon DVMCC. [Exp. #106.]

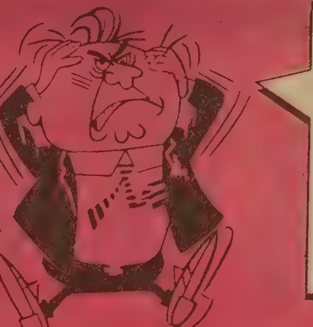
Bust Out BBS. (510)881-5427. 24 hrs., 14,400. Four nodes, 2GB, huge msg and file network (including adult). Computer systems and software services. Sysop: Alex J. Riggs. [Exp. #106.]

California High-Flyers BBS. (510)568-9250. 8-N-1, 24 hrs., 300/1200/2400. More Bay Area numbers, nine lines, chat, email, library. Ages 10 and up. Two subscription levels. Sysop: Carl Dominic. [Exp. #107.]

The Chemical Want Ads.

Continued

Are You Suffering From Computer Anxiety?



- Should I buy ISA, EISA or VESA?
- Are there any Standards for Local Bus?
- Has the true 50MHz VESA Local Bus been standardized yet?! Is it safe to buy?
- What the heck is "Bus Mastering"? Does my system support it?
- Do all hard drives support the Local Bus?
- Is the P24T OverDrive the same as the Pentium?

WHO CAN HELP ???

Call now before you get to this advanced stage where there is no going back.

VESA: Video Electronics Standard Association

VESA STANDARDS:

RECOMMENDED:

Using a maximum of TWO VESA Expansion Slots for plug-in "External" Local Bus Cards, such as Video Cards, Caching Controllers... etc., on the motherboard that are:

a. Unbuffered!

b. Run at 33MHz (DX2/66MHz)!

NOT RECOMMENDED:

Having any VESA Expansion Slots (Buffered or Un-Buffered) for plug-in "External" Cards on a true 50MHz Mother Board!

NEW!

MICRONICS VESA VL-BUS Intel 66MHz 486DX2 CPU

Made in USA

Add only $40 for 340MB Hard Drive

- 66MHz Intel 486DX2 CPU
- 8MB RAM, 256K Cache
- 240MB Quantum ProDrive 256K Cache 11ms
- 32-Bit VESA Intergrated Local Bus IDE Interface
- 32-Bit ATI Ultra Pro Local Bus 1MB VRAM
- NEC 3FGX 15" (or MAG 15" MX15F) Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case 250W PS Dual Fans
- 101 Keytronics KeyBoard
- 2-VESA Local Bus and 6-ISA Slots

$2995

MICRONICS VESA VL-BUS Intel 66MHz 486DX2 CPU Ultra Store VESA SCSI-2 Controller

SUPER FAST

Made in USA

- 66MHz Intel 486DX2 CPU
- 8MB RAM, 256K Cache
- 250MB Maxtor SCSI-2 64K Cache 14ms
- 32-Bit VESA SCSI-2 Local Bus Ultra Store Bus Master Controller
- 32-Bit ATI Ultra Pro Local Bus 1MB VRAM
- NEC 3FGX 15" (or MAG 15" MX15F) Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case w/250W PS Dual Fans
- 101 Keytronics KeyBoard
- 2-VESA Local Bus and 6-ISA Slots

$3295

MICRONICS VESA VL-BUS Intel 33MHz 486DX CPU

Made in USA

- 33MHz Intel 486DX CPU
- 4MB RAM, 256K Cache
- 122MB Quantum ProDrive 256K Cache 11ms
- 32-Bit VESA Integrated Local Bus IDE Interface
- 32-Bit ATI Ultra Plus Local Bus 1MB VRAM
- 14" SVGA .28dp NI Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Medium Tower Case w/250W PS
- 101 Keytronics Keyboard
- 2-VESA Local Bus and 6-ISA Slots

$1995

MYLEX EISA-VESA Intel 66MHz 486DX2 CPU

Made in USA

- 66MHz Intel 486DX2 CPU
- 8MB RAM up to 128MB, 256K (AWB) Cache
- 210MB IDE Hard Drive 13ms 64K Cache w/RIDE*
- 32-Bit VESA Local Bus IDE Controller
- *32-Bit VESA Local Bus Stealth 24 VLB 1MB VRAM (S3)*
- 14" ViewSonic 6E NI .28dp Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Full-Tower Case w/300W PS Dual Fans
- Integrated 2 Serial and 1 Parallel I/O Ports
- 101 Keytronics Keyboard
- 2-VESA and 4-EISA/ISA Bus Mastering Slots
- Easy to Upgrade ZIF Socket
- Rapid Integrated Device Electronics

$2895

State Of The Art Pentium™ OverDrive™ (P24T) Ready

- AMI Enterprise III, VESA-EISA Motherboard
- 66MHz intel 486DX2 CPU
- 16MB 60ns RAM up to 256MB, 256K cache
- 880MB SCSI-2 Toshiba 512K Cache 12ms
- 32-Bit VLB Ultra Store 34F SCSI-2 Controller (add $200 for AMI FASTDISK SCSI EISA)
- 32-Bit VLB ATi Ultra Pro 1MB VRAM (or AMI EISA FastView 1MB)
- 15" NEC 3FGX (or MAG 15" MX15F) Monitor
- Dual 1.2 and 1.44 High Density Floppy Drives
- Deluxe Full-Tower Case w/300W PS Dual Fans
- 101 OmniKey Keyboard
- 2-VESA/EISA and 6-EISA Bus Mastering Slots
- Pentium™ OverDrive™ P24T Socket

$4550

EISA SCSI-2 File Server Intel True 50MHz 486DX CPU

Made in USA

- 50MHz Intel 486DX CPU
- 16MB RAM, 256K Cache
- 535MB SCSI-2 Hard Drive 12ms
- Adaptec 1742 SCSI-2 EISA Controller
- Orchid Pro-Designer IIs EISA or AMI EISA FastView 1MB
- 14" SVGA NI .28dp Monitor
- 1.2 and 1.44 High Density Floppy Drives
- Full-Tower Case w/300W PS Dual Fans
- 2 Serial and 2 Parallel Ports
- 101 Keytronics Keyboard
- 8 32-Bit EISA Slots

$3595

GUARANTEE TO BEAT ANY PRICE* • 1 YEAR PARTS WARRANTY • LIFE-TIME LABOR WARRANTY

Genoa 486DX2/66MHz VLB

- Genoa TurboExpress VLB MB
- Intel 486DX2/66MHz CPU
- 8MB RAM, 256K Cache
- 250MB IDE Hard Drive 12ms
- 1.2 and 1.44 Floppy Drives
- 15" SVGA .28dp NI Flat Monitor
- 32-bit Genoa 8500VL 16M Card
- 32-bit VLB IDE Controller
- Medium-tower Case 250W PS
- Basic Components

$2295

486DX/33MHz VLB

- Local Bus Mother Board
- Intel 486DX/33MHz CPU
- 4MB RAM, 64K Cache
- 130MB IDE Hard Drive 15ms
- 1.2 and 1.44 Floppy Drives
- 14" SVGA .28dp NI Monitor
- 32-bit SVGA VLB Fast Card 1MB
- 32-bit VLB IDE Controller
- Mini-tower Case w/200W PS
- Basic Components

Add $130 for DX2/50MHz

$1550

486DX/50MHz ISA

- ISA Mother Board
- Intel True 486DX/50MHz CPU
- 8MB RAM, 256K Cache
- 250MB IDE Hard Drive 12ms
- 1.2 and 1.44 Floppy Drives
- 14" ViewSonic 6E .28dp NI Monitor
- Stealth 24 Card (S3) 1MB VRAM
- Medium-tower Case w/230W PS
- Basic Components

Add $175 for EISA

$1995

SPECIAL

486DX/33MHz ISA

- ISA Mother Board
- Intel True 486DX/33MHz CPU
- 8MB RAM, 256K Cache
- 210MB IDE Hard Drive 15ms
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA Color Monitor
- Super VGA Card 1MB RAM
- Mini-tower Case w/200W PS
- Basic Components

Add $175 for EISA

$1550

SPECIAL

486DX/33MHz ISA

- ISA Mother Board
- Intel 486DX/33MHz CPU
- 4MB RAM, 64K Cache
- 130MB IDE Hard Drive 15ms
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA Color Monitor
- Super VGA Card w/512K RAM
- Mini-tower Case w/200W PS
- Basic Components

Add $175 for DX/50MHz

$1250

486SX/25MHz ISA

- ISA Mother Board
- Intel 486SX/25MHz CPU
- 4MB RAM, 64K Cache
- 105MB IDE Hard Drive 16ms
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA .Color Monitor
- Super VGA Card w/512K RAM
- Mini-tower Case w/200W PS
- Basic Components

Add $100 for SX/33MHz

$1050

SPECIAL

386DX/33MHz

- ISA Mother Board
- 386DX/33MHz CPU
- 4MB RAM, 64K Cache
- 105MB IDE Hard Drive 16ms
- 1.2 and 1.44 Floppy Drives
- 14" Super VGA Color Monitor
- Super VGA Card w/512K RAM
- Mini-tower Case w/200W PS
- Basic Components

Add $15 for 40MHz

$999

Software/Printers Special

(w/a system only)

Software		Printers	
MS Works	$110	HP DeskJet 500	$375
MS Word 2.0	$279	HP DeskJet 500C	$495
MS Excel 4.0	$279	HP DeskJet 550C	$685
MS Office 3.0	$459	HP LaserJet IIP+	$769
Word Perfect 5.1	$255	HP LaserJet 4	$1399
Lotus 1-2-3	$350	Panasonic 1180i	$155
MS DOS 5.0	$40	Panasonic 1123	$195
Windows 3.1	$40		

BASIC COMPONENTS: 101 Enhanced Keyboard • 2HD/2FD IDE Controller • 2S, 1P, 1G Ports • Clock/Calendar • Norton Anti-Virus

Hard Drives

105MB	$215
130MB	$235
170MB	$270
210MB	$340
250MB	$395
340MB	$550
535MB	$899

Monitor/Video

NEC, Sony, Nanao, MAG, ViewSonic, ATI,, Diamond, Genova, Orchid, etc. ...Please Call

Fax/Modem

2400 Modem	$35
96/24 Fax/Modem	$55
96/96 Fax/Modem	$145
14.4/14.4 Fax Modem	$195
Intel Satisfaction 400	$395

Storage Devices

120/250MB Tape Back-up	$185/250
120/250MB Trakker Parallel	$359/420
21MB Floptical Drive w/Kit	$350
2.88MB Floppy Drive	$99

Internal CR-ROM

Mitsumi 350ms w/Card	$239
SONY 31A 490ms w/Card	$295
SONY 541 380ms w/Card	$425
Texel 3024 265ms	$425
NEC CDR-84 280ms	$545
Toshiba XM-3401B 200ms	$495

MultiMedia

MediaVision Fusion CD 16 Kit	$525
Creative Labs Upgrade Kit	$525
Pro AudioSpectrum 16bit	$189

MultiMedia (Continued)

Sound Blaster Pro Basic	$149
Sound Blaster Pro 16bit	$179
Video Blaster (TV in PC)	$375

Pointing Devices

3-button Mouse	$19
Logitech 1st Mouse	$35
Logitech Mouseman	$69
Logitech Trackman	$79
SummaSketch III 4 Button	$299

GUARANTEES:

1. 72 Hour Burn-in and Quality Check
2. Original Brand New Parts and Manuals
3. 100% IBM, NOVELL Compatibility
4. Life-time Technical Support and Advice
5. Prompt Courteous Sales & Tech Staff
6. Your 100% Satisfaction

Partial List of Our Corporate and Gov't. Customers:

Federal Govt, Lockheed Space and Missile, State of California, Federal Express, Mills-Peninsula Hospital, Metropolitan Insurance, Adaptec, Cal-Trans, Nat'l Semiconductors, Continuum Lasers,...and many more.

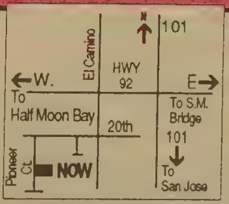
(Contacts and Phone #'s are available upon request).

Cash prices.

now Computers

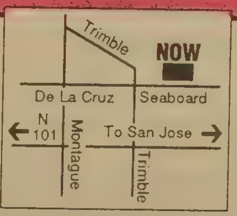
San Mateo
Tel: 415/345-4577
Fax: 415/345-4576

Hours:
M-F 9-6:00
Sat. 11-6



NEW LOCATION

2031 Pioneer Court
Suite #2,
San Mateo, CA 94403



Hours:
M-Th 9-8
Fri 9-6
Sat. 11-6

San Jose
Tel: 408/894-7060
Fax: 408/894-7062
2526 Seaboard Ave.
San Jose, CA 95131

* A hard copy quote will be required. The quote must be for an equal value items. Prices are subject to change without notice. Not responsible for typographical errors.

BBSes

(510)449-4778. 8-N-1, 14,400. BBS for the Chemical industry. Forum for discussion of topics as well as classified ad section. Sysop: Kevin Johnson. [Exp. #108.]

Classified BBS-Net SL. (510)481-8217. Supports all systems, 2.5GB, multi-line. [Exp. #106.]

Compu-Ace RBBS. (510)794-4029. 9600. Files, games, msg., Turbo Pascal Programmers conference, and more. Member of BAY-LINK. Sysop: Scott A. Mercer. [Exp. #106.]

Computer Communications BBS. (510)672-9325. 8-N-1, 14,400. Member of Fidonet, PowerNet, and Mustang Software's Support Net echos. [Exp. #107.]

CyberBBS. (510)527-9012. 8-N-1, 2400. VR, cyber culture, music tech, discussions. [Exp. #108.]

Dear Theophilus BBS. (510)831-THEO. 300/1200/2400/9600/14,400. Games, 8000 Mac files, discussion, God talk. Free. Sysop: Mark Spaulding. [Exp. #108.]

Delta BBS. (510)778-3714. 24 hrs., 1200/2400/9600/14,400. 40+ online games, msg bases, and transfer section w/out ratios. Free. Sysop: Phantom. [Exp. #107.]

The Diamond Mind. (510)791-1910. 8-N-1, 24 hrs., 300/1200/2400/9600,14,400. Emotional support, IBM and Mac files, Fido echos, chat, online games, adult areas. Free user level. Sysop: Diamond & Frank. [Exp. #106.]

DVPC BBS. (510)943-6238. 8-N-1, 300–14,400. [Exp. #107.]

Entrepreneur On-Line BBS. (510)791-0259. 8-N-1, 2400. Multi-node, 135,000MB online, small-businessperson theme. Free IBM download first call. [Exp. #108.]

Fantasies Adult BBS. (510)632-1590. 8-N-1, 24 hrs., 300/1200/2400. XXX—this is an adult lifestyles BBS with worldwide echo networks and local personals. [Exp. #106.]

Francofolies. (510)651-3192. 1200/2400/9600. The French BBS of the Bay Area: online games, electronic newsletter, msg in French or English. No fee. Co-Sysop: MEJV. [Exp. #106.]

Fred Haney & Sons BBS. (510)792-5119. 8-N-1, 24 hrs., 2400. Software, Windows, etc., Fremont. Free. [Exp. #106.]

FrEdMail Oakland. (510)834-2636. 1200/2400/9600. Educator/student network w/ Internet mail access, OUSD Bilingual Ed support BBS. [Exp. #108.]

FrEdMail Snlndro. (510)895-1785. 1200/2400/9600. Educator/student network with Internet mail access, San Leandro HS, NorCal Hub. [Exp. #108.]

Friendly BBS. (510)432-7802. 300/1200/2400/9600. Upload/Download. Sysop: Doyle Goodman. [Exp. #106.]

Galaxy BBS. (510)623-8933. 24 hrs., 300/1200/2400/9600/14,400. Provides support to Galaxy Multimedia Audio/Video products. Sound, music, games, DOS, and Windows. [Exp. #107.]

The GIFt Ship BBS. (510)689-4986. Adult graphics: straight, gay, lesbian, bi, tv, bondage, S&M. Sysop: Waik Gan. [Exp. #106.]

GMV-BBS. (510)294-9052. 24 hrs., 300/1200/2400/9600. Multiline subscription BBS. Teleconference, private chat, email, SIGs, games, and file library for Amiga, IBM, Apple 8-bit, and Mac. Livermore. [Exp. #108.]

Gold Diggers BBS. (510)568-7807. 24 hrs., 2400–19,200. Messages and files, IBM, Atari, Amiga, and Mac. Registration. $10/yr. Sysop: Harry H. Goldberg. [Exp. #108.]

The HomeShopper Online. (510)687-3633. 8-N-1, 1200/2400/9600. Hardware, software, and services. Sysop: Max. [Exp. #107.]

IDC BBS. (510)865-7115, 814-8097. 8-N-1, 9600. Alameda, 340MB, 775+ conf areas, Qmail 4.0, PCBoard, ILink, RIME BizNet. Sysop: Mike King. [Exp. #106.]

IISME–Net. (510)643-6258. 300/1200/2400/9600. Industry Initiatives for Science & Math Ed., Lawrence Hall of Science, K12net educator/students network. [Exp. #108.]

Imperial City BBS. (510)631-1569. 24 hrs., 14,400. Many files, interesting msgs. No fees. Sysop: Byzantine and XModem. [Exp. #108.]

Initiative BBS. (510)654-2253. 8-N-1, 300/1200/2400. A political board established to support the Committees of Correspondence. Devoted to documents and discussion related to the left in this country and the future of the left. Sysop: Steve Willett. [Exp. #108.]

Kanon Tech BBS. (510)235-6839. 8-N-1, 24 hrs,, 300/1200/2400/9600/14,400. C libraries, shareware, Echomail net, commercial software/hardware online store. [Exp. #107.]

Knight Court BBS. (510)946-1049. 2400/9600/14,400. NFL, sports, gambling, chess, and 40+ doors. No charge, no hassle, no kidding. [Exp. #106.]

The Krypt BBS. (510)447-4623. 1200/2400/9600/14,400. Full multimedia support BBS. Sysop: Donovan Sobrero. [Exp. #108.]

'Lectrick Blue. (510)376-3805, 798-7705, 525-5332. 8-N-1, 1200/2400/9600/14,400. Internet, Usenet, WWIV-Net, WWIV-Link, VBBS-Net, Fido, Adult-Net, Icenet, 100+ msg bases, games, and more. [Exp. #106.]

MDBJ. (510)658-8078. 2400. A BBS for women on the edge. NIRVANAnet. [Exp. #107.]

The New-Ark BBS. (510)796-0947. 24 hrs., 2400/9600. Tradewars, running on two CD-ROMs. Reg required. Sysop: Hiram Wolf. [Exp. #108.]

Night Creatures BBS. (510)481-9774. 24 hrs., 300/1200/2400/9600/14,400. Files, msgs., online games, TrueType fonts. Beginners welcome. Free access. Sysop: [Exp. #106.]

NightLine BBS. (510)234-1053. 1200/2400/9600/14,400. Nationwide Echo link for veterans' and men's issues conferences. Free. Sysop: Jon Mankowski. [Exp. #107.]

Off Broadway's AutoCAD BBS. (510)547-8801. 8-N-1, 300/1200/2400/9600. Dedicated to supporting AutoCAD. Message base free and non-members can download one file a day. Unlimited membership, $50/yr. Sysop: Robert Schutz. [Exp. #106.]

Olde Stuf BBS. (510)530-3051. 8-N-1, 24 hrs., 2400. Antiques & Collectibles. Buy, sell, learn. Sysop: Bill Clark. [Exp. #106.]

Omikron BBS. (510)657-8820. 24 hrs., 14,400. Mac files and discussions. Fremont. No download limits. Free access. [Exp. #107.]

The Party Wherehouse BBS. (510)256-9809 (1200/2400), 256-8979 (4800–38,400). 10 networks, UUCP, Internet, and more. Games and files, full access first call, over 150 message bases. [Exp. #106.]

The Phantom Zone BBS. (510)538-9586. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Online games, offline mail reader. Free access. Sysop: Paul Graydon. [Exp. #107.]

Pittsburg Pirates BBS. (510)432-2927. 24 hrs., 300/1200/2400/9600. Running OMNI 128 and OMNI–Net, msg. bases, UL/DL areas. C64/128 board, but all welcome. Sysop: Slowhand. [Exp. #106.]

Psychic Link BBS. (510)849-3539. 24 hrs., 2400. Share with others interested in psychic abilities and energy. International caller base. Shareware. [Exp. #108.]

Realitycheck. (510)527-1662. Moved to Albany. Instant access, no fee. NIRVANAnet. [Exp. #107.]

Records Dept. BBS. (510)426-0470 (2400), 426-0793 (14,400). Amiga, IBM, and Mac. Free. Extras for subscribers—Fidonet, games, chat. Sysop: Paul Tibbals. [Exp. #107.]

SpeakEasy. (510)522-1700. 8-N-1, 14,400. 16 lines, downloadable program for mouse support. Files, chat, Internet access soon. Sysop: Jim Kestler. [Exp. #108.]

Testing 1,2,3...BBS. (510)373-0873. 24 hrs., 1200/2400/9600. IBM/Mac, messages, shareware files, nine lines. Livermore. Sysop: Corey L. Nelson. [Exp. #106.]

Tiger Team. (510)658-0607. 14,400. Games, data encryption, PC Security & Virus Prevention. Firearms conference. Free. [Exp. #107.]

The Transfer Station BBS. (510)837-4610, 837-5591. 8-N-1, 24 hrs., Free Internet/USENET access. Lrg. DOS/Windows/OS2 library. No fees. [Exp. #106.]

Viper 1 Premium BBS. (510)535-0231, 535-0315. 8-N-1, 24 hrs., 2400/9600/19,200. Multiline, 900MB, 1.3GB online, large adult file areas, games, file scanning facilities online. [Exp. #107.]

WelchNet Pleasanton. (510)417-0444. 1200/2400/9600. Finance and investment-related files, msg. areas. No fee. Sysop: Mark J. Welch. [Exp. #106.]

Wild At Heart. (510)689-WILD. 300/1200/2400. VirtualNet BBS, high access for first-time callers. The BBS with heart! Sysop: Steve Rochin. [Exp. #106.]

Windows Online. (510)736-8343. Windows BBS and publisher of WinOnLine Review. Over 9,500 Win 3.x & 20,000 DOS files, 7GB, 13 lines using USR-DS modems. Free trial. [Exp. #108.]

Winshare BBS. (510)686-4464. 1200/2400/9600. Multinode, your new connection point for Windows shareware/support files. Running Wildcat! Free. [Exp. #106.]

Wishing Well BBS. (510)745-7901. 24 hrs., 300/1200/2400. Email, matchmaker, files, 100+ online games, adult sig/files. Free. [Exp. #106.]

Worldview BBS. (510)676-2919. 8-N-1, 24 hrs. 1200–14,400. Reformed Christian perspective, files/discussion on philosophy, public policy. $49/yr. Sysop: Bill Gram-Reefer. [Exp. #106.]

707

The Black Rose. (707)557-6444. 24 hrs., 300/1200/2400. Commodore 64/128 BBS, running Image v1.2a and a NISSA Network Assoc. ANSI graphic menu, health msgs. Sysop: Captain Keelhaul. [Exp. #107.]

Dave & Jean's BBS. (707)554-3801. 8-N-1, 300/1200/2400/9600/14,400. IBM, online games, files, msgs, and more. Free access. Sysop: Dave & Jean J. [Exp. #107.]

Dobbs Enterprises. (707)427-0277. 300/1200/2400/9600. Part of WIVInet conference. 24,000+ files. [Exp. #106.]

Mnemonic BBS. (707)451-8353. 300/1200/2400/9600/14,400. CD-ROM 7,000 files, netmail, doors. [Exp. #106.]

Recommended BBS. (707)448-2225. 24 hrs., 300/1200/2400. Multiuser games, teleconference, conversational and technical areas, 16 lines. All welcome. Sysop: Jay C. Parangalan. [Exp. #107.]

The Software Zone. (707)765-2447. 2400/9600/14,400. 3000+ files, programming oriented. TRUE graphical interface. [Exp. #108.]

User Friendly BBS. (707)645-8894. 8-N-1, 24 hrs., 9600. IBM/Amiga, NCNet, MSINet, msgs, sci-fi/fantasy info and reviews, doors. Sysop: Jim K. [Exp. #106.]

The WINd Tunnel. (707)421-0380. 24 hrs., 1200/2400/9600/14,400. Windows programs and utilities, WAV's, GIF's, doors, and conferences. Sysop: John Wright. [Exp. #107.]

916

24th Street Exchange. (916)451-7179. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. 16 lines, 4 CD-ROMs, well-maintained. [Exp. #108.]

ASSOCIATIONS

American Association For Artificial Intelligence (AAAI). Call: (415)328-3123. Email: membership@aaai.org. [Exp. #107.]

Association For Women In Computing. Meetings: 1st Wed., 5:30 pm, San Francisco. Call: (415)979-8450. [Exp. #107.]

The Association For Worldwide Software Support Management. Meetings: 2nd Tues., Milpitas Sheraton. Call: Mikael Blaisdell, (415)865-1323. [Exp. #109.]

Computer Professionals For Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, Rm. 608-7. Call: Judy Stern, (510)643-7499. [Exp. #109.]

IEEE Computer Society, San Francisco Chapter. Meetings: Varying Weds, 7:00 pm, SF State. Call: (415)905-4400. [Exp. #109.]

Independent Computer Consultants Association, Northern California Chapter. Meetings are open to all. Only national trade assoc. comprising non-aligned working computer professionals with in-the-trenches experience. Call: ICCA, (415)441-2948. [Exp. #106.]

North Bay Systems Professionals. Meetings: 3rd Wed., 7:00 pm, Holiday Inn, Terra Linda, 1010 Northgate Dr., San Rafael. NBSP provides a forum and network for systems professionals. Call: Harry Chapman, (415)291-0174. [Exp. #109.]

San Francisco Robotics Society Of America. Meetings: 1st Wed., 8:00 pm, Exploratorium, San Francisco. Free. Call: Brad Smallridge, (415)550-0588. [Exp. #111.]

Society For Technical Communication, Berkeley Chapter. Meetings: 2nd Wed., 6:00 pm, Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Call: Rich Julius, (415)837-0397. [Exp #106.]

Society For Technical Communication, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)985-7121. [Exp. #107.]

Software Entrepreneurs' Forum. 3rd Wed., 6:30 pm, Elk's Lodge, 4249 El Camono, Palo Alto. Industry association dedicated to software developers and entrepreneurs, offering information and education on all facets of the software industry. Call: Information, (415)854-7219; reservations, (415)965-9003. [Exp. #109.]

United Sysops Association. Meetings: 2nd Wed., 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Organization of bulletin board sysops and users. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #109.]

TELL 'EM YOU SAW IT IN MICROTIMES

Continued

50,000

Past Attendees have sought Information Technology Solutions at DB/EXPO!

DB/EXPO '93

Moscone Convention Center
San Francisco, California

Conference • May 3 - 7, 1993
Exhibits • May 4 - 6, 1993

THE WORLD'S LARGEST DATABASE CLIENT-SERVER & INFORMATION TECHNOLOGY EXPOSITION AND CONFERENCE

Eight Answer-Packed Conferences

Over 100 sessions featuring 200 renowned industry experts, users and key technology vendors.

1. Executive DB/EXPO Conference
2. Client-Server Applications Development Conference
3. Client-Server and Data Warehousing Conference
4. Open Systems and Unix OLTP Conference
5. Object-Oriented and Evolving Technologies Conference
6. Desktop Database Conference
7. Windows Conference
8. Real Applications Solutions Conference

DB/EXPO is a registered trademark of NDN Enterprises Inc.

In-Depth Technical Seminars

Dr. Nathan Goodman
"Object-Oriented Database Systems"

Richard Finkelstein
"Evaluating and Using SQL Client/Server Software"

Alfred Spector
"Opening up your OLTP System"

Chris Date
"Advanced Aspects of the Relational Model"

Chris Loosley and Colin White
"Developing Client/Server and Cooperative Processing Applications"

Michael A. Goulde
"The Reality of Unix As An Application Platform"

Visit over 500 Leading Technology Exhibits showcasing the latest in Information Technology Business Solutions!

AMDAHL
Andersen Consulting
Apple Computer
Bachman
Borland
Cincom
Computer Associates
Cross Access
DataEase
DEC
Gupta Technologies
Hewlett Packard
IBM
Information Builders
Ingres
JYACC
Microsoft
NCR
NeXT
Novell
Oracle
Parc Place
Pick Systems
Servio
Smartstar
Software AG
Tandem
and many others!

1-800-2DB-EXPO

Keynotes

[illegible]

Bill Gates, Microsoft Corporation
[illegible]

Steven Jobs, NeXT Computer
[illegible]

Larry Ellison, Oracle Corporation
[illegible]

Philippe Kahn, Borland International
[illegible]

Dr. Robert Epstein, Sybase
[illegible]

Morris Taradalsky, Apple
"The Information Technology Revolution"

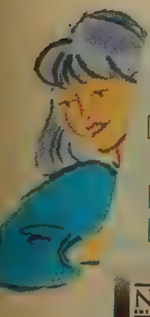
Dr. Patricia Selinger, IBM Corp.
"Trends in Database Systems"

Colin White, DB/EXPO Conference Director
[illegible]

Become more competitive in today's tough business climate!

If you're looking for solutions that will meet and exceed your information technology business objectives, then come to DB/EXPO '93, The World's Largest Database, Client-Server, and Information Technology Exposition and Conference.

Yes, I want to learn about Information Technology Solutions!



Please Send Me:
☐ My DB/EXPO '93 Information Solutions Conference Brochure
☐ _____ Complimentary Exhibit Passes
☐ Information on exhibiting

Please type or print clearly

Name: Title:
Company:
Street: Mail Stop:
City: State: Zip:
Telephone: Fax:

NDN
NDN Enterprises
444 Castro Street, Suite 1101
Mountain View, CA 94041

1-800-2-DB-EXPO
Tel: (415) 966-8440
FAX: 415-966-8934

19

QUICK & EASY FAX FORM (415) 966-8934

USER GROUPS

ACCESS

Microsoft Access Developers Group. Now forming. Downtown San Francisco. Send name, address, and fax # to receive meeting and membership info, to: Computer/Management Solutions, 235 Montgomery St., #750, SF, CA 94104 [Exp. #110.]

ACCOUNTMATE

AccountMate User Group. Meetings: 3rd Tues., 7:00 pm, S. Branch Berkeley Library, 1901 Russell St. Call: Joshua, 1-800-310-0262. [Exp. #106.]

ADOBE

Systems Adobe Technology Exchange: San Francisco Peninsula/South Bay Chapter. Meetings: 2nd Wed., 7:00 pm, M&T Publishing, 411 Borel Ave., San Mateo. Call: ATX, (408)562-6104. [Exp. #109.]

AMIGA

3rd Dimension—Imagine/Lightwave User Group. Meetings: 1st & 3rd Mon., Computer Showcase, 2739 Geary Blvd., SF. Call: Ollie, (415)863-8792. [Exp. #110.]

AAA—Amiga Addicts Anonymous. Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, monthly disks, info line. Call: (510)935-0829. [Exp. #109.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #109.]

Amiga User Group—Germany. German Amiga user group is seeking contacts in the US. Contact: Nils Wietelmann, Unter den Heestern 28, W-2839 Kirchdorf, Germany. [Exp. #106.]

AUM—Amiga Users Of Marin. Meetings: 3rd Wed., 7:30 pm, College of Marin Science Center, Rm. 190. Beginners class at 6:00 pm. Call: (415)456-1411. BBS: (415)485-5895. [Exp. #109.]

AWEST Amiga Users In SF. Meetings: 1st Thurs., 7:00 pm, Laguna Honda School, Conference Rm., 1350 7th Ave., San Francisco. Call: (415)584-8406. [Exp. #109.]

FAUG—First Amiga User Group. Meetings: 1st Tues., 7:30 pm, HT Electronics, 275 N. Matilda Ave., Sunnyvale. Q &A, new product demos, public domain software. Call: Mike Fisher, (415)855-9816; BBS: (415)595-2479; Usenet: mikef@hpspd.hp.com. [Exp. #111.]

Redwood Empire Amiga. Meetings: 3rd Tues., 7:30 pm, Santa Rosa Plaza, Community Room. SIGs meet throughout month. Call: (707)523-9978. BBS: (707)795-2717. [Exp. #109.]

TOGA—The Other Group Of Amigoids. Meetings: Varying Sat., 12:30 pm, Milpitas Library, 40 N. Milpitas Blvd. Call: Lawrence Brown, (408)984-6036. [Exp. #108.]

Apple

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Call: Roger Laker, (415)367-8657. [Exp. #109.]

AT&T

AT&T Computer User Group. Meetings: 1st Wed., general discussion at 6:00 pm, main program at 7:00 pm, 50 Fremont St., 40th Floor, San Francisco. Call: Jim Lansing, (415)885-6631 or Joe Mahoney, (415)584-6510. [Exp. #111.]

AT&T UNIX Computer User Group. Meetings: 4th Wed., main program begins at 7:00 pm, location varies, South Bay area. Call: Thad Floryan, (408)985-7100; USENET, thad@cup.portal.com. [Exp. #111.]

ATARI

BAAUG (Bay Area Atari Users Group). Meetings: 1st Mon., 7:00 pm, Agnews Aud., Santa Clara. Call: Andres Barbiero, (408)986-9787. BBS: (408)986-0215. [Exp. #107.]

DACE—Diablo Atari Computer Enthusiasts. Meetings: 1st Thurs., Contra Costa Water District Bldg., 1331 Concord Ave., Concord. Call: Dan Galant, (510)689-8256. [Exp. #109.]

COMMODORE

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #109.]

CWEST Commodore 64/128. Meetings: 3rd. Mon., 7:00 pm, UC Med Center, 521 Parnassus, RM. C-213, San Francisco. Call: (415)626-9946. [Exp. #111.]

CONTACT MANAGEMENT

Bay Area TeleMagic User Group. Meetings: 2nd Wed., 4:00 pm. Call: George Workman, (408)476-6385. [Exp. #110.]

The Golden Gate Telemagic User Group. Meetings: 2nd Wed., 4:30 pm, Flood Bldg., Room 1213, 870 Market St., San Francisco. Call: 1-800-238-3370. [Exp. #109.]

CP/M

San Francisco Computer Society. Meetings: 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallegher, (415)929-0252. [Exp. #109.]

DBASE

Association Of Database Developers, dBASE SIG. Meetings: 4th Tues., 7:30 pm, The Gatehouse, Ft. Mason Center. $5.00 guest fee, free to ADD members. Call: (415)281-5638. [Exp. #110.]

Association Of Database Developers, Fox SIG. Meetings: 1st Thurs., 7:00 pm, PG&E Tower, 77 Beale St., Rm. 1760. $5.00 guest fee, free to ADD members. Call: (415)281-5638. [Exp. #110.]

DESKTOP PUBLISHING

San Mateo County Ventura Publisher User Group. Meetings: 3rd Mon., 6:45 pm, San Mateo ROP, 1800 Rollins Rd., Rm. 14, Burlingame. Call: Elinor Cruze, (415)366-5317. [Exp. #106.]

FREEDOM, PRIVACY, AND TECHNOLOGY

BMUG SIG On Freedom, Privacy, And Technology. Meetings: Last Sun., 2:00 pm, BMUG office, 2055 Center St., Berkeley. Call: Judi Clark, (510)549-2684. [Exp. #110.]

IBM AND COMPATIBLES

Alameda Computer User Group. Meetings: 2nd Wed., 7:30 pm, Social Hall, Temple Israel, Island Dr. and Mecartney Rd. Providing an informal forum for both Macintosh and PC users to explore questions about hardware and software. Call: (510)523-1139. [Exp. #106.]

Berkeley PC User Group. Meetings: 2nd Mon., 7:00 pm, Winners Circle Systems, 2618 Telegraph Ave., Berkeley. Presentations followed by discussion, PD library, newsletter, Geo Ensemble SIG. No charge. Call: Mel Mann, (510)526-4033. [Exp. #110.]

Delta PC Users Group. Meetings: 3rd Sat., 10:00 am. Pittsburg Adult Ed., Rm. 23, 20 E. 10th St. Call: (510)427-2255, ext. 744. [Exp. #110.]

DVPC—Diablo Valley User Group. Meetings: 1st Thurs., 7:30 pm, Bank of America, Bldg. B, Clayton Rd. at Galindo, Walnut Creek. SIGs include WordPerfect, Windows, Paradox, Beginner's, Visual Basic, education/entertainment, and new users. Call: (510)943-1367. [Exp. #110.]

EastBay FOG. Meetings: 2nd Wed., 7:30 pm, Episcopal Church of St. John-in-Montclair, 1707 Gouldin Rd., Montclair. All microcomputers, MS-DOS, CP/M. Call: (510)653-2627. [Exp. #109.]

Golden Gate Computer Society (GGCS). Meetings: 4th Mon. 6:45 pm, San Rafael Community Center. Free intro to computers class at 6:00 pm. Call: (415)927-2909. [Exp. #106.]

IBM Technical SIG. Meetings: 2nd Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Rm. H-1, Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: Peter Harris, (415)329-1880. [Exp. #106.]

Micromate–CP/M–DOS Users Group. Meetings: 1st Thurs., 7:30 pm, Eclectic computer buffs. Chabot Observatory, 4917 Mountain Blvd., Oakland. Call: Ed Miller, (510)376-1611. [Exp. #109.]

PC Clone User Group. Meetings: 2nd Mon., 7:00 pm, Ft. Mason, Rm. C217. Visitors $3. Call: (510)684-0107. BBS: (415)652-1736 [Exp. #110.]

PC Users Group Of The Redwoods (PCUGR). Meetings: 2nd Thurs., 6:30 pm, Santa Rosa Veterans Memorial Building. Call: (707)527-USER. [Exp. #110.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-9981. BBS (415)571-9259. [Exp. #109.]

San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. [Exp. #111.]

San Francisco PC Users Group. Meetings: 3rd Tues., 6:15 pm, Conference Center, Bldg. A, Fort Mason. Visitors $4. Call: (415)979-5879. [Exp. #109.]

South Bay WordPerfect User Group. Meetings: Dates vary, Saratoga Community Library. Free. Call: Martin Van Derpool, (408)238-8434. [Exp. #106.]

KNOWLEDGEMAN

Bay Area KnowledgeMan (And Guru) User Group. Meetings: 1st Tues., 6:30 pm., JNZ, Inc., 826 Las Trampas Rd., Lafayette. A forum for discussion and info concerning mdbs products, esp. KnowledgeMan and Guru. Call: (510)947-4878. [Exp. #107.]

LANTASTIC

LANtastic User Group Of The East Bay. Meetings: 6:00 pm, 2770 Marin Blvd., Berkeley. Call: Loretta, (510)444-1441. [Exp. #109.]

LAPTOPS

HPX HP Laptops & Handhelds. Meetings: 2nd Sat., Sunnyvale. Call: Michael Felsenstein, (415)564-8279. [Exp. #111.]

LEGAL

SF Bar Assoc. WordPerfect User Group. Meetings: 3rd Wed., noon of odd numbered months. Brown bag meetings. SF Bar Assoc. Boardroom, 7th Fl., 685 Market St. Call: (415)421-5650. [Exp. #111.]

MACINTOSH

A32 Macintosh User Group. Meetings: 2nd Sat., 10:00 am, GTE Bldg 3 Cafeteria, 100 Ferguson Dr., Mountain View, corner of Central Expressway and Highway 237. Call: (408)263-0398. [Exp. #111.]

BMUG—Berkeley Macintosh User Group. Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #109.]

Diablo Valley Macintosh User Group (DVMUG). Meetings: 3rd Tues., 7:00 pm, Old Republic Title Co., 3000 Clatyon Rd., Concord. Get together w/Mac and Performa users. Enjoyable SIG meetings. Call: (510)945-4548. [Exp. #111.]

International Macintosh User Group (IMUG). Meetings: 3rd Thurs., 6:45 pm, location varies. A forum for multilingual computing. Call: Roger Sherman, (415)859-5146. [Exp. #111.]

Let's Go Macintosh Computer Society. Meetings: 3rd Thurs., 7:00 pm, Skyline Jr. College, Media Center, Rm. 2105, San Bruno. See and try interesting new products, meet other Mac users, hear guest speakers. Call: Fidel Cajulao, (415)221-2995, or Nolan Apostle, (510)947-2523. [Exp. #108.]

Macintosh SIG. Meetings: 3rd Tues., 7:00 pm, Apple Cafeteria, City Center 4, De Anza and Rodrigues, Cupertino. Sponsored by Software Entrepreneurs' Forum. Call: Jeff Cherniss, (408)999-2524. [Exp. #110.]

MaCruzers. Meetings: 2nd Wed., Santa Cruz. Call: Peter Visel, (408)454-0403. [Exp. #109.]

Macs Of Marin. Meetings: 2nd Thurs., 7:00 pm, Redwood High School, Larkspur. Marin County Mac User Group for all levels of expertise, beginners welcome, SIGs. [Exp. #107.]

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Call: Roger Laker, (415)367-8657. [Exp. #109.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library. Call: Dean Fearn, (510)881-9160. [Exp. #109.]

MULTIMEDIA

BMUG Multimedia SIG. Meetings: 2nd Mon., 6:00 pm, Call: (510)549-BMUG. [Exp. #106.]

DesignSIG. Meetings: 3rd Tues., 6:00 pm. New SIG open to independent businesspeople in graphic arts, word processing, and related fields. Focus to share concerns and solutions related to running own business. Call: Bill Brent, (415)282-7368. [Exp. #111.]

International Interactive Communications Society—IICS. Meetings: 2nd Tues., 7:00 pm, alternate locations San Francisco and south bay. For people involved or interested in developing and using interactive multimedia technologies. Call: IICS Hotline, (415)328-7318. [Exp. #106.]

North Bay Multimedia Association (NBMA). Meetings: 3rd Thurs., 7:00 pm, alternated locations. Call: Luong Tom, (415)459-0441. AOL:NBMA. [Exp. #109.]

Macromedia User Forum. Meetings: 1st Wed., 600 Townsend, at 7th St., San Francisco. Meet fellow professionals, preview products, get questions answered. Call: John Dowdell, (415)665-3916 (days); Email: jdowdell@aol.com. [Exp. #106.]

Multimedia SIG. Meetings: 1s Thurs., 7:00 pm. SIG of Software Entrepreneurs' Forum Call: Ralph Gilman, (408)746-0551. [Exp. #111.]

Multimedia User Group. Meetings: 1st Wed., 7:00 pm, 60 Townsend St., 1st Fl., San Francisco. A forum to learn abou the multimedia industry, ge your questions answered, an meet with fellow professionals. Sponsored in part b Proxima and Mitsubishi. [Exp #106.]

NANOTECHNOLOGY

Nanosystems Study Group Meetings: Alternate Mondays 7:30 pm, University Luthera Church, 1611 Stanford Ave. Palo Alto. The study group wil go through Eric Drexler's book *Nanosystems: Molecular Machinery, Manufacturing, an Computation.* Announcement and mailing list, contact: Te Kaehler, email Kaehler2@AppleLink.Apple.com Phone: (408)974-6241. [Exp #110.]

The Assembler Multitude Meetings: every other Mon 7:30 pm, University Luthera Church, 1611 Stanford Ave Palo Alto. An open discussio of new technical development in Nanotechnology and soci consequences and dangers Nanotechnology. Organized b Ted Kaehler. Emai Kaehler2@AppleLink.Apple.co

Continu

BEST PRICES • HIGHEST QUALITY • GREAT SERVICE

SYSTEM	MB	BASIC
VESA LOCAL BUS (AIR MOTHERBOARD)		
EISA 486DX2-66 W/256K	$965	$1145
EISA 486/50 W/256K (3 SLOTS LOCAL BUS)	865	1045
EISA 486/50 W/128K (3 SLOTS LOCAL BUS)	855	1035
EISA 486-33 W/256K (3 SLOTS LOCAL BUS)	731	911
ISA 486DX2-66 W/256K (3 SLOTS LOCAL BUS)	740	920
ISA 486-50 W/256K (3 SLOTS LOCAL BUS)	646	826
ISA 486-50 W/128K (3 SLOTS LOCAL BUS)	624	804
ISA 486-33 W/256K (2 SLOTS LOCAL BUS)	445	625
ISA 486-33 W/64K (2 SLOTS LOCAL BUS)	415	595

SYSTEM	MB	BASIC
ISA 486-50 W/256K	$568	$748
ISA 486-50 W/64K	543	723
ISA 486-33 W/256K	432	612
ISA 486-33 W/64K	403	583
386-40 W/64K	164	344
386-33 W/64K	159	339
386SX-33	94	274
386SX-25	91	271

MONTHLY

- EISA VESA LOCAL BUS MOTHERBOARD 3 SLOTS 486-33 W/256K CACHE $427
- NON-INTERLACED MONITOR .28dp . $284
- IDE VESA LOCAL BUS W/ I/O CONTROLLER $99
- GENOA 8500 1 MB VGA LOCAL BUS VGA CARD $119

BASIC SYSTEM INCLUDES: 486/386/286 Motherboard • 486/386/286 CPU • 1 MB RAM • 101 Keyboard • 1.2 MB or 1.44 MB Floppy Drive • Baby AT or Mini Tower Case with Power Supply • 2FDD & 2HDD Controller Card w/Cable

1 YEAR WARRANTY PARTS & LABOR ON SYSTEMS

MOTHERBOARDS W/O CPU

EISA	
486DX2-66, DX2-50, DX-50, DX-33 W/64K & 3 SLOTS LOCAL BUS (AIR)	$427
ISA	
486DX2-66, DX2-50, DX-50, DX-33 W/64K, & 3 SLOTS LOCAL BUS (AIR)	$204
486-33 W/256K, 2 SLOTS LOCAL BUS	149
486-33 W/64K, 2 SLOTS LOCAL BUS	119
486-50 W/256K	141
486-50 W/64K	110
486-33 W/256K	136
486-33 W/64K	106
486 & 386 W/128K	121
386-33 W/64K	95
386-33 W/64K	94
386-25 NO CACHE	83
386SX-33	94
386SX-16	84
286-20	59
286-12	55

CASES

Baby AT Case w/200W PS	$52
Mini Tower Case w/200W PS	52
Big Tower Case w/230W PS	99
Mid Tower Case w/230W PS	78
Super Tower Case w/250W 2 Fans	154
Slim Case w/PS	75

VIDEO CARDS

MGP Card	$10
Diamond Stealth 1 MB VL VGA	163
Orchid Fahrenheit	198
VGA 800 x 600 256K	25
VGA 1024 x 768 512K	35
VGA 1024 x 768 1 MB	53
VGA Tseng Lab 1024x768 1 MB Hi-Color	89
ProDesigner llsi Hi-Color	120

MONITORS

Mono 12"	$71
Mono 14"	86
SVGA 14" .39	218
SVGA .28.	249
SVGA .28 Non Interlace	297
ViewSonic 6E	335
ViewSonic 6FS 15"	619
ViewSonic 7 17" .28	1020
ViewSonic 8 20" .25	1570
NEC 3FGX 15"	649
NEC 4FGX 16"	745
NEC 5FGX 17"	1350
SONY 1304	549
SONY 1604 16"	1019

RAM

4 MB-60ns Simm	$129
4 MB-70 Simm	125
1 MB-60	35
1 MB-70	32
256K 70 Simm	10

CALL FOR CPU, MATH COPROCESSOR PRICE

FLOPPY & HARD DRIVES

***Floppy Drives**	
Teac 2.88 MB FDD	$89
Teac 1.2 MB FDD	54
Teac 1.44 MB FDD	48
CONNER	
CP3000 42 MB 28ms	$129
CP30064H 60 MB 19ms	179
CP30084E 85 MB 19ms	183
CP30104H 120 MB 19ms	219
CP30174 174 MB 17ms	248
CP3204F 212 MB 16ms	329
MAXTOR	
7080A 80 MB 17ms	$184
7120A 130 MB 15ms	219
7213A 213 MB 15ms	329
LXT 340A 340 MB 15ms	575
LXT 213SY 213 MB 15ms SCSI	418
LXT 340S 340 MB 15ms SCSI	611
XT 8760S 675 MB 16ms SCSI	1070
XT 8760E 676 MB 14ms ESDI	1078
PO-12S 1.02 GB 13ms SCSI	1452
PI-17S 1.5 GB 13ms SCSI	1716
FUJITSU	
ESDI	$131
M2623FA 425 MB	924
M2624FA 520 MB	934
M2266SA 1.2 GB	1650
M2652SN 2 GB	2570

CONTROLLER CARDS

MFM MB 1:1	$36
IDE 2 FDD/2 HDD 1:1	12
IDE VL 2 FDD/2 HDD 1:1	58
SCSI Controller	59
SCSI.Ultra 24F (EISA) Future Domain	440
SCSI Ultra 14F	210
SCSI DTC 3290 AS (EISA) w/512K cache up to 4 MB	499
SCSI DTC 3280K	129
SCSI Adaptec AD 1742K (EISA)	475
SCSI Adaptec AD 1542B	255
Promise PM-20440 (SCSI) w/o Cache up to 16MB	258

MODEM CARDS

2400 Int/Ext Modem	$35/88
2400 MNP5 External	101
9600 Internal Modem	170
9600 External Modem	275
9600 Fax/2400 Modem	56

KEYBOARD/MOUSE

101 Keyboard	$22
101 Click	24
Keytronic Keyboard	33
Track Ball 101 K	67
Logitech Mouseman	62

MISCELLANEOUS

Mouse	$12
Super I/O	15
AT I/O Card (2S/1P/1G)	10
MS DOS 5.0	35
Windows 3.01	35
120 MB Colorado Tape Back-up	187
Tape	19
Tape Back-Up 120MB Controller Card AB10	69
250 MB Colorado Tape Back-Up	237
Archive 250 MB Tape Back-Up	199
Tape	24
Tape Back-Up 250MB Controller Card FC10	99
Tape Back-Up 250MB Controller Card TC15	189
Sony 535 CD-ROM (600 MB)	379
NEC CD-ROM	499
Diskette Box	7
Power Center	15

NETWARE

ETHERWARE LAN CARDS	
EtherPerfect EP-301	$130
NE 2000 16-Bit	67
NE 1000 8-Bit	66
ARCNET LAN CARDS	
16 Bit	$58
8 Bit	43

SCANNER

ScanPlus Full Page	$399
ScanPlus Full Page Color	915
Grey Scale w/OCR	660
Grey Scale w/o OCR	610

DEALER INQUIRIES WELCOME

WENTEK Computer

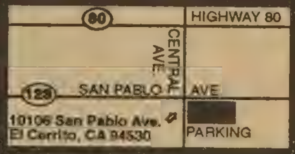
DEALER INQUIRIES WELCOME

CENTRAL EXPWAY.
SCOTT BLVD
S.J.
101
S.F.
SAN TOMAS EXPWAY.
LAWRENCE EXPWAY.
3056-C Scott Blvd.
Santa Clara, CA 95054

(408) 727-4362
Fax: (408) 727-5528
3056-C Scott Blvd.
Santa Clara, CA 95054

MON-FRI: 9:00-6PM
SAT: 10-6PM

(510) 524-0312
Fax: (510) 524-1534
10106 San Pablo Ave.
El Cerrito, CA 94530



Prices subject to change w/o notice. Cash • Cashier's Check • Money Order. Personal Checks from Bay Area Only!

USER GROUPS

Address: 20525 Mariani Ave., MS 301-3D, Cupertino, CA 95015. [Exp. #110.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)277-5867. [Exp. #111.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. Call: (415)327-BANG. Email: info@BANG.org. [Exp. #109.]

Berkeley NeXT Users Group. Meetings: 2nd Tues., 7:00 pm, 2055 Center St., Berkeley. Call: Bernt Wahl, (510)644-0139. [Exp. #106.]

NOVELL

Silicon Valley Novell User Group. Meetings: 3rd Wed., 6:30 pm, Coco's, 1305 S. Mary Ave., Sunnyvale. Call: Bill Strouse, (408)739-9081. BBS: (408)739-8753. [Exp. #106.]

OMNIS 7

GUIdata Bay Area Omnis 7 User Group. Meetings: 1st Mon. Newsletter, forum for all users. Call: Peter Bennett, (510)935-5203. [Exp. #107.]

OS/2

OS/2 Bay Area User Group. Meetings: 4th Mon., 7:00 pm. For anyone interested in OS/2. Presentations, product demos, questions and answers. Call: (415)755-3124. [Exp. #109.]

OS/2 SIG Of San Francisco. Meetings: 2nd Wed., 7:00 pm, location varies. Call: Margery Blum, (415)931-3110. [Exp. #107.]

PROGRAMMING LANGUAGES

APL Interest Group Of Northern CA. Meetings: 2nd Mon., 7:00 pm, Syntex Labs, 3401 Hillview Ave., Palo Alto. A member SIG of ACM. Call: (408)742-5277. [Exp. #110.]

C/C++ Programmers Network. Write: Rick Rowe, 3245 S. White Rd., Suite 106, San Jose, CA 95148-4056. Email: rown@netcom.com. [Exp. #109.]

Forth Interest Group Of North Bay. Meetings: 2nd Sat., 1:00 pm, 2055 Center St., Berkeley. Call: Leonard Morgenstern, (510)376-5241. [Exp. #109.]

Peninsula/South Bay Visual Basic SIG. Call: Allan Colby, (415)851-4657. [Exp. #110.]

Power BASIC Study Group. Meetings: Now forming. Call: Thipdar, (510)783-1972. [Exp. #111.]

Sacramento Forth Interest Group. Meetings: 4th Wed., 7:00 pm, SMUD, 1708 59th St., Rm. A., Sacramento. Call: Bob Nash, (916)487-2044. [Exp. #109.]

SF Bay Area Visual BASIC User Group. Call: Gustavo Eydelteyn, (510)547-7295. [Exp. #111.]

Silicon Valley Forth Interest Group. Meetings: 4th Sat., 10:00 am, Applied Biosystems, Inc., Conference Room A/B, 230 Lincoln Centre Dr., Foster City. Call: Art Hampton, (415)873-8554. [Exp. #109.]

Q&A

East Bay Q&A User Group. Meetings: 4th Tues., 7:00 pm, San Leandro. Developing and expanding the many uses of Q&A database/word processor program by Symantec. Call: Philip Edwards, (510)635-1997. [Exp. #106.]

West Bay Q&A User Group. Meetings: 2nd Tues., 7:00 pm, Redwood City. Developing and expanding the many uses of Q&A database/word processor program by Symantec. Call: Philip Edwards, (510)635-1997. [Exp. #106.]

R:BASE

R:BASE Developers Group. For meetings and membership info, call: (415)956-1200. [Exp. #110.]

SQL

SQL_Forum/Bay Area SQL Database Server User Group. Meetings: Once a month in downtown SF. Oracle, SQL Server, SQLBase, and more. Call: Robert Gentry, DBBS, Inc. (415)583-3000. [Exp. #107.]

TELECOMMUNICATIONS

BMUG Telecom SIG. Meetings: Last Wed., 8:00 pm. How to use your modem, terminal programs, and the BMUG BBS. Call: (510)549-BMUG. [Exp. #107.]

TEXAS INSTRUMENTS

Santa Clara Valley TIPC Group. Meetings: 4th Thurs., 7:00 pm, Magnolia Inn, 176 S. Bernardo, Sunnyvale. Newsletter, library. Call: Ralph, (510)526-2492. [Exp. #106.]

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #109.]

THEOS

Theos User Group. Call: (510)785-7355. [Exp. #106.]

UNIX/XENIX

UNIX SIG. Meetings: 2nd Tues., DEC, 800 W. El Camino Real, Mountain View. Sponsored by Software Entrepreneurs' Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #106.]

VIDEO TOASTER

Video Toaster User Group. Meetings: Last Thurs., 7:30 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Special guests, equipment demos, hands-on workshops, plus info/tips on new System 2.0. $4 for non-members. Call: Andrew Timmins, (408)243-9233 (eve). [Exp. #108.]

VIRTUAL REALITY

Virtual Reality Group. Meetings: varies. VRG is a nonprofit organization dedicated to supporting and promoting the development of VR technologies in the Bay Area. Everyone welcome. Call: Linda Jacobson, (415)286-4716. Email contacts: Linda Jacobson (lindaj@well.sf.ca.us), Peter Rothman (avatarp@well.sf.ca.us), or Timothy Childs (tchilds@well.sf.ca.us). [Exp. #110.]

Virtual Reality SIG. Meetings: San Francisco, East Bay. Call: Mike Conduris, (415)566-8681. [Exp. #110.]

WINDOWS

BMUG Windows Programmers SIG. Meetings: 1st Tues., 6:30 pm, 2055 Center St., Berkeley. The Programmers SIG is a forum for Windows programmers of all levels to meet and exchange information. Call: Ferdinand Rios, (510)526-3031. [Exp. #109.]

WinSIG. Meetings: 1st Wed., 6:30 pm, Cubberley Community Center, Rm. H-1, 4000 Middlefield Rd., Palo Alto. Windows SIG of the Software Entrepreneurs' Forum. Call: Fran Finnegan, (415)288-4400. [Exp. #107.]

Continued from page 124

world are discovering that "competitive intelligence" is essential to their survival. Businesses are also finding that they cannot limit themselves to watching key competitors and their products, but must monitor demographic and economic trends, environmental costs, and many other complex issues which impact on profit margins. As Alvin Toffler has illustrated in his book *Power Shift,* information is indeed a substitute for time, space, capital, and labor.

Unfortunately, despite a vast range of multimedia and multilingual sources of information, and a proliferation of information handling technologies and government/private sector contracts for coping with information overload, there is as yet no useful architecture or strategic plan for improving access by government employees, business analysts, or US citizens to open sources.

To address these issues, and foster improved relations between the intelligence community, the traditional (corporate) information community, and the nontraditional information community consisting of independent information professionals and hackers (many of the latter employed by conventional organizations), a new nonprofit education corporation was formed in 1992, Open Source Solutions (OSS).

The "main event" for OSS is its annual international symposium exploring three themes: sources of multimedia data, information handling technologies, and government/private sector contracts. The first symposium, held December 1–3, 1992, at the McLean Hilton in Tysons Corner, Virginia, attracted 629 participants, including numerous Europeans, Japanese, and Latin Americans. Twenty-one competitively selected displays, including government displays, provided participants with a tailored look at state-of-the-shelf unclassified intelligence applications.

Major speakers in 1992 included the Deputy Director of Central Intelligence, the Chief of Staff of the Defense Intelligence Agency, the Director of Defense Information, and numerous other authorities including Dr. Jay Keyworth, Dr. Robert Kahn, Dr. Stephen Andriole, Dr. John Gage, Mr. Howard Rheingold, and Mr. John Perry Barlow.

Participants from the three communities were unanimous in the need for such a forum. One senior defense intelligence official, still in awe over his first meeting with a well-known Japanese cellular hacker, was overheard to say that he had never understood hackers before, and had thoroughly enjoyed his encounter. Others, made aware for the first time of the significant research potential of the Association of Independent Information Professionals, as well as efforts in the private sector by the Society of Competitive Intelligence Professionals, expressed a strong interest in better integrating intelligence community and private sector efforts to collect, process, and disseminate unclassified information.

The second international symposium will take place November 2–4, 1993, at the Ritz-Carlton in Tysons Corner, Virginia, with a projected audience of 750 and space for fifty displays. For more information contact Robert D. Steele, President, Open Source Solutions, 1914 Autumn Chase Court, Falls Church, Virginia 22043-1753, voice (703)536-1775, facsimile (703)536-1776, INTERNET: steeler@well.sf.ca.us. ■

Best Prices! Best Quality! Best Service!

CALL FOR UPDATED PRICES

LAITRON COMPUTER WEEKLY SPECIALS

486-66/256K

- Diamond 2 VESA Local Bus Board w/ on board IDE controller
- Intel 80486DX2-66 CPU w/fan
- AMI BIOS,C&T Chipset
- 8 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- AT I/O 2S/1P/1G
- Western Digital 212MB 14ms HD
- Focus 9000 128 key Keyboard
- Diamond Stealth VESA Local Bus
- Viewsonic 6FS 15" N-I Monitor
- Super Tower w/rollers & fan
- 300-Watt Power Supply

$2490

486-66/256K

- Orchid 2 VESA Local Bus Board
- Intel 80486DX2-66 CPU w/fan
- AMI BIOS, OPTI Chipset
- 8 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- VESA Local Bus IDE
- AT I/O 2S/1P/1G
- Western Digital 212MB 14ms HD
- Focus 9000 128key keyboard
- Orchid VA805 VESA Local Bus
- Mag 15F 15" N-I Monitor
- Super Tower w/rollers & fan
- 300-Watt Power Supply

$2540

486-33/64K

- 2 VESA BUS BOARD
- Intel 80486DX-33 CPU
- AMI BIOS
- 4 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- IDE/IO 2FD/2HD/2S/1P/1G
- 32-bit Local Bus
- Western Digital 212MB 14ms HD
- Mitsumi 101-key Keyboard
- VESA LOCAL BUS VIDEO 1MB
- 1024x768 .28dp SVGA Monitor
- Medium Tower Case
- 250-Watt Power Supply

$1450

386-40/64K

- AMD 80386DX-40 CPU
- AMI BIOS & Math-Co Socket
- Internal Clock/Battery
- 4 MB RAM 70ns
- 1.2 MB Floppy Drive
- 1.44 MB Floppy Drive
- IDE 2FD/2HD Controller
- AT I/O 2S/1P/1G
- Conner 80MB 17ms HD
- Mitsumi 101-key Keyboard
- Trident SVGA with 512K
- 1024x768 .28dp SVGA Monitor
- Mini Tower Case
- 200-Watt Power Supply

$899

HARD & FLOPPY DRIVES

CONNER CP3000 40MB 25ms IDE	$130
CONNER CP30084E 80MB 18ms IDE	$172
CONNER CP30104 120MB 16ms IDE	$219
CONNER CP30174 170MB 16ms IDE	$248
CONNER CP3544 540MB 13ms IDE	$820
MAXTOR 7040AT 40MB IDE	$125
MAXTOR 7120AT 130MB 15ms IDE	$225
MAXTOR 7213AT 213MB IDE	$315
MAXTOR LXT340AT 340MB 15ms IDE	$540
MAXTOR LXT535A 535MB 12ms IDE	$790
QUANTUM ELS127 127MB IDE	$225
QUANTUM LPS240 240MB 15ms IDE	$345
QUANTUM 420MB 13ms SCSI	$750
TOSHIBA 877 MB 12ms SCSI	$1055
WESTERN DIGITAL 212MB 14ms IDE	$299
WESTERN DIGITAL 340MB 13ms IDE	$445
TEAC 1.2 MB Floppy Drive	$53
TEAC 1.44 MB Floppy Drive	$50

CONTROLLER CARDS

IDE 4FD/2HD	$34
IDE 2FD/2HD/2S/1P/1G	$15
ORCHID VESA Local Bus IDE	$90
ADAPTEC 1522 SCSI	$98
ADAPTEC 1542B SCSI Kit	$232
ADAPTEC 1542BK+	$305
ADAPTEC 1742 EISA SCSI	$410
BUSTEK EISA SCSI	$303
IDE Cache Controller	$110
ULTRASTOR 24F EISA SCSI	$438

MEMORY & MATH-CO

1 MB x 9 SIMM 60ns	$35
1 MB x 9 SIMM 70ns	$32
4MB x 9 SIMM 60ns	$135
4MB x 9 SIMM 70ns	$125
CYRIX 387DX-40/33/25	$92/$70/$70
CYRIX 387SX-25/20/16	$70
INTEL 80387DX-33/25	$87
INTEL 80387SX-20/16	$83

MONITORS

HITACHI CM-2085M+ (20")	$1289
MAG 15F/17F (15"/17", .26dp)	$560/$1040
NANAO F550i /T560i (17")	$1020/$1759
NEC 3FGX/4FG (15", .28dp)	$613/$715
NEC 4D (16")	$565
NEC 5FG OEM/Original (17")	$1290/$1390
SONY CPD-1304/1604	$535/$945
SONY 1430	$589
VIEWSONIC 4E/5E/5+	$280/$380/$480
VIEWSONIC 6E/6FS	$319/$535
VIEWSONIC 7/8	$963/$1513
Mono 12"/14"/Mono VGA 14"	$73/$92/$117
VGA 14" .51dp	$175
SVGA 14" .39dp/.28dp	$205/$245
SVGA 14" .28dp Non-Interlaced	$270

VIDEO CARDS

ATI Graphic Ultra Pro w/2 MB	$398
ATI Graphic Ultra Plus w/2 MB	$298
ATI Graphic Ultra w/1 MB & Mouse	$248
CIRRUS LOGIC VESA Local Bus w/2 MB	$145
DIAMOND SpeedSTAR 24 w/Hi-Color & 1 MB	$140
DIAMOND SpeedSTAR 24X w/Hi-Color & 1 MB	$147
DIAMOND Stealth 24 w/Hi-Color & 1 MB	$157
DIAMOND Stealth 24 VESA Local Bus w/1 MB	$185
DIAMOND ProVRAM w/2 MB	$420
DIAMOND Viper VESA Local Bus w/2 MB	$480
ORCHID Fahrenheit VA801 w/1 MB	$150
ORCHID Fahrenheit VESA Local Bus w/1 MB	$195
ORCHID ProDesigner IIS w/Hi-Color & 1 MB	$117
ORCHID P9000 VESA Local Bus w/1 MB	$475
TRIDENT 256K/512K/1 MB	$31/$38/58
TSENG LAB VESA Local Bus w/1 MB	$120

MOTHERBOARDS W/CPU

DIAMOND 486DX2-66/256K w/2 VESA Local Bus	$895
ORCHID 486DX2-66/256K w/2 VESA Local Bus	$880
ORCHID 486DX-50/256K w/2 VESA Local Bus	$800
TYAN 486DX-50/33/256K w/2 VESA Local Bus	$625/490
NICE 486DX-50/256K EISA	$750
NICE 486DX-33/256K EISA	$590
486DX-50/256K	$605
486DX2-66/256K	$695
486DX2-50/256K	$555
486DX-33/128K	$430
486SX-25/128K	$275
386DX-40/128K	$169
386DX-33/64K	$160
386DX-25	$139
386SX-33	$99

KEYBOARDS

Enhanced 101-key Keyboard	$20
FOCUS 2001 Keyboard	$39
FOCUS 9001 Keyboard	$63
KEYTRONIC 101-key Keyboard	$34
MAXISWITCH 101-key Keyboard	$30
METEK K208 101-key Keyboard	$22
METEK K104 Click Keyboard	$42
MITSUMI 101-key Keyboard	$26
NORTHGATE Omnikey 101/102	$65
NORTHGATE Omnikey Ultra	$87

PRINTERS

HP LaserJet 4	$1352
HP DeskJet 500	$385
HP DeskJet 550C	$719
HP PaintJet	$699
PANASONIC 1180	$140
PANASONIC 1123	$170
PANASONIC 1124i	$240
PANASONIC 2123	$220
PANASONIC 2123 Color Catridge	$45
PANASONIC 4410	$595

CASE & POWER SUPPLY

250W UL Listed Power Supply	$69
300W UL Listed Power Supply	$89
Desktop AT Case w/200W PS	$56
Full-size Tower Case w/250W PS	$117
Medium Tower Case w/250W PS	$85
Mini Tower Case w/200W PS	$53
Super Tower Case w/300W PS, 2 Fans	$195

MISCELLANEOUS

2400 Internal Modem	$34
9600/2400 Internal Fax/Modem	$53
9600/2400 Internal Fax/Modem(Windows fax software)	$58
14400/14400 Internal Fax/Modem	$190
MS Compatible Mouse	$12
3M DC2120 Tape	$22
COLORADO DJ-10	$168
COLORADO DJ-20	$215
COLORADO Trakker 250MB	$395
COLORADO TC-15 controller w/data compression	$195
COLORADO FC-10 controller	$95
IMPRESSION 3-Button Mouse	$18
IOMEGA 250MB Tape Backup	$260
LOGITECH First Mouse	$35
LOGITECH Mouseman	$60
LOGITECH Trackman	$75
MICROSOFT DOS 5.0	$45
MICROSOFT Windows 3.1	$45
MICROSOFT Mouse	$60

CD-ROM & SOUND CARD

NEC CD-ROM & SOUNDCARD	$870
NEC CD-ROM 84M (280ms)	$550
NEC CD-ROM 74M (280ms)	$630
SONY CD-ROM CDU535	$326
SONY CD-ROM CDU541	$426
MITSUMI CD-ROM(350ms)	$220
MEDIA VISION CD-ROM & Sound Card	$920
MEDIA VISION ProAudio Spectrum 16	$185
CREATIVE LABS SoundBlaster	$95
CREATIVE LABS SoundBlaster Pro w/MIDI Kit	$180
CREATIVE LABS CD-ROM & Sound Card	$400
TEXEL CD-ROM DM-3024(265ms)	$395
TOSHIBA CD-ROM XM-3401B w/card (200ms)	$490
CD-ROM Software--6 Titles	$105

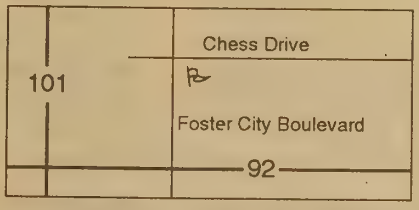
Terms & Conditions:

- Nationwide on-site service available
- Price and availability subject to change without notice
- Shipping, COD, & insurance are extra and not refundable
- Prices reflect cash discount
- All returns must have prior authorization
- All returns must be in original packaging complete with manual, software, . . . etc.
- Not responsible for typos on this ad

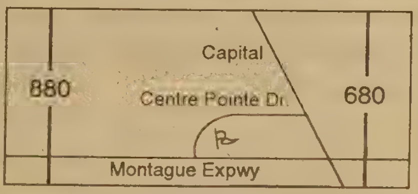
LAITRON COMPUTER

HOURS:

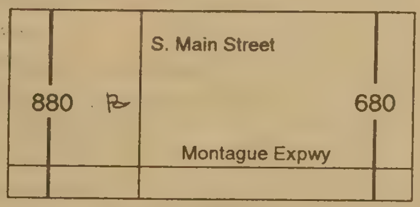
9:00 AM TO 6:30 PM M-F
10:00 AM TO 4:00 PM SAT



1169 Chess Drive, Suite E
Foster City, CA 94404
Tel:(415)578-8998
Fax:(415)578-8880



1646 Centre Pointe Drive
Milpitas, CA 95035
Tel:(408)945-1411
Fax:(408)945-1075



1605 S. Main Street
Milpitas, CA 95035
Tel:(408)945-9540
Fax:(408)945-0225

Classifieds

Accessories

Extension cables to 250 ft. available
Works with VGA, SVGA and RGBS monitors
Made in USA

Display Your PC's Screen on up to 20 Monitors

Model 400 Video Splitter

Starting at $225

H & R TECHNOLOGY

SANTA ANA, CA (714) 641-6607

VIDEOCONFERENCE WORLDWIDE
- VIEW REMOTE SCENES IN REAL TIME
- CAPTURE IMAGES TO PCX / TIF FILES
- SEND DATA/IMAGE FILES VIA MODEM

VIDTEL Board - $895

Use standard telephone lines
Coast-to-coast $14 per hour
640x480x256 SVGA images
Receive End Display Control
Full duplex data transmissions
IBM compatible PC slot
Video and Modem interface
VIDCOMP Imaging, Inc.
2200 Bay Road
Redwood City, CA. 94063
Tel. (415)348-6903
Fax (415)365-0859

Printer sharing devices (wireless also), New ribbons, Laser toner cartridges, drums, bulk diskettes. C.A.P. (408) 452-0241.

Sharp wizard. 64KB Plus 64KB card, PC link, software. $517 new, $275 like new. (408) 244-4677.

Accessories

POWERVISION

New revolutionary on-line buying & information service. Ground floor opportunity MLM. Income for Life. A no risk money making Opportunity. Call for details. (415) 388-8893

New VM/CMS Survival Guide

Covers REXX, EXEC2, XEDIT, some Internet. 9 Tutorials. 5¼, & 3½ " disks incl. Great 600 pg. resource! Free info.

Bridge Learning Systems, Inc

(800) 487-9868

Custom Computer Cabinets* Save desk space*Tailored to your needs*Attractive styles*Free estimates*Armadillo Cabinetry (408) 423-6769.

BUY AT DISCOUNT! PowerBook, Notebook & Cellular Batteries, Fully Guaranteed; Service, Convenience, Selection & Low Prices HUDSON BAY 1-800-447-0400.

Bulletin Boards

We have the Bay Area covered!
- 30,000 files, 5.2 Gigabytes
- PC-SIG Library on CD ROM
- Huge Adult Conference
- Local Numbers for many bay cities.

MasterCard VISA

415-598-0398	San Carlos
415-992-3780	San Francisco
510-254-5455	Orinda
510-862-2200	Sunol
408-247-1717	San Jose

first ONLINE

PACIFIC EXCHANGE BBS 408-946-8561. Full Featured BBS with 12 Incoming Data Lines, 50,000 IBM/Window files, 10,000 Adult files, USA-Today online news, Games, Grafittie, Classifieds and more.

FREE WINDOWS SOFTWARE, Windows Online (510)736-8343 bbs. Get those hard to find public domain and shareware Windows 3.x files. Call from your home or office, by modem. Assist your company with their Networking of Windows. ATTENTION: Windows Developers, upload your new DEMOS and Sharware for distribution. We provide 50 New Windows & DOS files everyday & currently 10,000+Win3 files-Over 650 message and support Conferences. Read our new magazine called "WinOnLine REVIEW" with its full color graphics and hypertext, all in a Windows HELP file. Includes Windows Tips, shareware and commercial software reviews, New Win3 Product News and much more. All 13 lines are US Robotics Dual Standard modems to 16,800 BPS., 7.0 gigs of storage and Visa/MC accepted on-line for memberships. Call (510) 736-8343 today. Sysop&Publisher, Frank Mahaney.

Bulletin Boards

FIRST ONLINE. Over 30,000 files. 5.2 Gig! PC-SIG Library. Huge adult conference. All lines USR 1200-16,800 baud. REDWOOD CITY: (415)598-0398 SAN FRANCISCO: (415)992-3780 ORINDA: (510)254-5455 SUNOL: (510)862-2200 SAN JOSE: (408)247-1717.

THE PHOENIX ISLANDS BBS (408) 270-7456 1200-14,400, games, utils, gifs, win, adult files, Shware, Public Domain, FREE ACCESS Sysop: Phan Tran.

The Skull. (415) 637-9077/ (415) 692-7721. 2,400-16,800. Local from Palo Alto to SF. 5 Nodes, Gif's, games, since 1985.

Nitelog BBS, DOS, Windows, OS/2 and Adult Files. 17 Nodes (408) 655-1096, 655-8294 v.32bis.

Cartridge Refill

Help the envorinment and save money! 100% guaranteed Toner Cartridges for HP, Canon, NEC, Panasonic, Apple, Brother, IBM, Wong, etc, and printers services. LASER CONCEPTS 1-800-675-9501 or 510-674-1501.

Cartridge Refill

Cartridge Refill

Quality Remanufactured Cartridges

Ribbon	Laser Toner
Top quality new ribbon replaces old ribbon, as good as new or better.	High Quality after market parts make our cartridges better than new & 100% guaranteed.

Save $ and help keep cartridges out of Landfill

We Buy Cartridges!

ReNew Printer Cartridge Corp.

(415) 363-2148
1(800) 303-2148

$3 off first Laser Cartridge with ad.

Toner Cartridges
LaserJet & LaserWriter

$27.50

100% Guaranteed

PRECISION LASER

VISA

(408) 727 - 8338

ORRIS TONER CARTRIDGE REMANUFACTURING COMPANY

We completely disassemble, clean and replace worn or defective parts, replace toner with high quality OEM toner and assign your cartridge with a tracking number.

Ink Jet Cartridges Refilled	$6.00-$12.00
Ribbons Re-Inked	$1.00-$7.90

1-(800)-484-9896-1055 • Local (408) 779-6940 **100% GUARANTEE**

MICROTIMES

HOW TO PLACE YOUR CLASSIFIED AD IN MICROTIMES:

MINI DISPLAYS: 1 column inch=1 5/16"x7/8" wide. $49 per col/inch, camera ready art, or $49 + $20 for 1X typesetting/ production fee.

BUSINESS ADS: Rates are $15 for 15 words or less. 50¢ for each additional word. Your phone number counts as one word.

CATEGORIES: See index to choose the classification that best describes your product or service.

FREE ADS: Private individuals may have one free classified ad of 15 words or less under Hardware, Software, or Accessories only. Mail coupon by the noon deadline for that issue, no phone orders for free ads.

No refunds will be given after copy is received. Credit may be given under certain circumstances

Mail, deliver or fax this coupon along with payment by noon deadline for that issue.

TO RESERVE SPACE
Phone Orders
(510) 934-3700
Fax Orders **(510) 934-7351**
with Visa or MasterCard only.

CLASSIFIEDS CATEGORIES
- ☐ HARDWARE
  - ☐ For Sale
  - ☐ Wanted
- ☐ SOFTWARE
  - ☐ For Sale
  - ☐ Wanted
- ☐ ACCESSORIES
- ☐ BULLETIN BOARDS
- ☐ SERVICES
- ☐ BAR CODES
- ☐ CARTRIDGE REFILL
- ☐ DESKTOP PUBLISHING
- ☐ DISK CONVERSION
- ☐ REPAIRS
- ☐ VOICE MAIL
- ☐ MISCELLANEOUS
  - ☐ Computer Rentals
  - ☐ Office Rentals

CAREER MARKETPLACE CATEGORIES
- ☐ Employment Information
- ☐ Jobs Offered

CONSULTANTS NETWORK CATEGORIES
- ☐ Accounting
- ☐ Business Opportunities
- ☐ Engineering
- ☐ Finance
- ☐ General
- ☐ Hardware
- ☐ LAN
- ☐ Programmers
- ☐ Software
- ☐ Technical Writing
- ☐ Training

____
____
____
____
____
____
____
____
____
____

Cost of ad ________ **X number of issues to run** ________ **= Amt. enclosed** ________

☐ **Classified** ☐ **Career Marketplace** ☐ **Consultants Network**

☐ Check/MO ☐ Visa ☐ MasterCard Credit Card # ________ Exp. Date ________

Name ________ Amt. ________

Address ________

City ________ State ________ Zip ________

Phone (____) ________

SEND TO: MicroTimes Classifieds, 3470 Buskirk Ave., Pleasant Hill, CA 94523

DEADLINE FOR INSERTION IN THE APRIL 5, 1993 ISSUE IS NOON ON FRIDAY, MARCH 19, 1993

Classifieds

Cartridge Refill

Laser Ace. Toner Cartridge recharge for Laser Printers and Canon PC Copiers, $34-$39. (408) 263-4608.

Toner Cartridges + WE WILL NOT BE UNDERSOLD! New Cartridges $69.95 and up (need-exchange). Remanufactured laser-printer and p/copier cartridges $26.95 and up (exchange). We sell L/ Printers and service them. We buy empty cartridges! We specialize in HP3si, IBM 4019, 4029 and HP-4 cartridges. L.C.I. (800) 404-2101.

CD-ROM

Adults CD ROM. All ROM disks are menu driven and BBS ready. Titles available PC-pix volumes l and 2, 600+ mega bytes, $159. Erotic Encounters, worlds largest adult CD ROM $139. Storm volumes I, 2 or 3 $159/each. Ecstacy Hot Picks $179. Cal Ad Software, P.O. Box 50204, Long Beach, CA 90815.

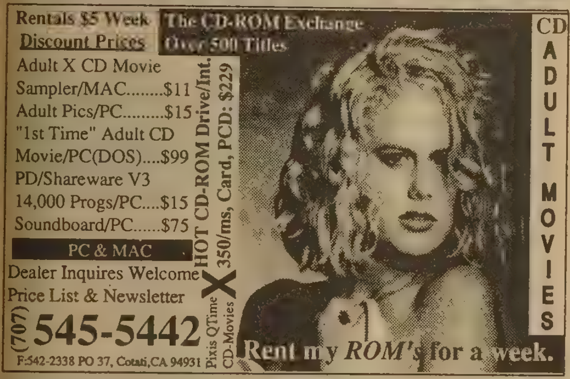
Multi-Media Trading Co. The best in CD-ROM shareware for 1993. American Premiere and Phoenix 3.0 $49/each or $79/ both. Free catalog. Call (510) 440-1800.

CD-ROM

CD-ROM DRIVES

Toshiba XM-3401B! Double Speed Texel DM-3024 and DM-5024
SCSI Interface cards Trantor T130
Media Vision Pro 16
Multimedia upgrade kits • Compact Disc Software
Sony CD-ROM Caddies • CD-ROM Accessories

COMPUTERS AT LARGE
Saratoga, CA
Dedicated to CD-ROM Technology
Please Call for Our Price List
800-642-4194 408-255-1081
408-255-2388 Fax
VISA MasterCard



Rentals $5 Week
Discount Prices
The CD-ROM Exchange
Over 500 Titles

Adult X CD Movie Sampler/MAC	$11
Adult Pics/PC	$15
"1st Time" Adult CD Movie/PC(DOS)	$99
PD/Shareware V3 14,000 Progs/PC	$15
Soundboard/PC	$75

PC & MAC
Dealer Inquires Welcome
Price List & Newsletter
(707) 545-5442
F:542-2338 PO 37, Cotati,CA 94931

HOT CD-ROM Drive/Int. 350/ms, Card, PCD: $229
X
Pixis QTime CD-Movies

CD ADULT MOVIES

Rent my ROM's for a week.

Photo CD Experts...
Photo CD™ **... that can help YOU!**

- CD/ROM drives - multisession *NOW!*
- Photo CD Software - Kodak or custom
  (we are a Registered Kodak Desktop Developer)
- Photo CD transfer services/prints/players

call us for help with your needs:
The AHLBERG Group, Inc.
(415) 851-4720
Photo CD Symbol is a trademark of Eastman Kodak Company

Data Recovery

Data Rx

Data Protection and Recovery

Data Rx offers *full* data services:

- Data Recovery (hard disk & floppy)
- Data Protection (including anti-viral)
- Backup services (including offsite storage)
- Preventive maintenance consultation
- Data organization for optimization
- Software development

415-546-6450
1-800-234-4379 FAX: 415-546-1708
123 Townsend St. #445 • San Francisco, CA 94107

Data Recovery

Data Conversion

COMPUTER DISK & TAPE CONVERSIONS
Micros • Minis • Mainframes
Duplications • Backup Retrieval
DATA CONVERSION SERVICES
415-456-7000

Hardware

Quality 386 and 486 custom system at rock bottom prices. 1yr. full warranty. Call (510)839-0307.

Computer Rentals

MacAcademy instructional videos - Pagemaker, Photoshop, Macromind, Free Hand, Excel, Filemaker, Superpaint and more. Sales and rentals (415) 255-9760.

Furniture

FURN-A-TECH Specialty, made-to-order computer furniture for home or office. A variety of fine woods, laminates and finishes to choose from. Call Rich at (415) 755-9172 or fax (415) 822-4243 for a no-obligation consultation. FREE keyboard roll out this month.

Hardware

LOW COST MAC & DRIVE REPAIR

MODEL	SWAP	REPAIR
*SONY, FD 800K	N/A	$60
*SONY, FD 1.44MB	$200	$80
PRO40S, HD 40MB	$200	$115
PRO80S, HD 80MB	$250	$195
PRO105S, HD 105MB	N/A	$210
MAC PCB AND P/S	N/A	CALL

***DOES NOT INCLUDE HEAD REPLACEMENT**
WE BUY MAC'S AND DRIVES

DATA FIELD
1033 PECTEN CT.
MILPITAS, CA 95035
PH 408-946-6444
FAX 408-946-9325

Hardware

SPECIAL WHOLESALE PRICES

386SX-33 64K	$736	486DX-33 64K	$925
386DX-33 64K	$809	486DX2-66 256K	$1289
386DX-40 128K	$815	486SX-25 64K/DX-50 256K	$871/1199

All Systems Include:
Motherboard, CPU, 1.44 or 1.2 floppy drive, desktop w/power supply, IDE controller + IO (2S, 1P, 1G), Super VGA monitor & card, 101 enhanced keyboard, 1MB memory, 80MB HD.

Notebook 60MB HD & 2MB RAM	$1035
Maxtor 1.7GB SCSI HD	$1475
1GB Toshiba or 1.2GB	$1045/$1290
174MB Conner or 340MB IDE	$270/499
17" Monitor .31dp	$649

HARD DRIVES	
80MB/120MB	$195/239
210MB/255MB IDE	$320/349
Fujitsu 520 IDE or SCSI (5 yr. parts/labor warranty)	$899/925
SoundCard w/spkrs & mic.	$99

We do repair and service.
Call for laserprinters, scanners, memory upgrade, networking, software, CD-ROM, local bus, bar coding.
(408) 997-8380 Dealer call (408) 997-6944

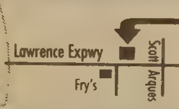
DEALERS' DRIVE SOURCE
New 330MB SCSI Drives - $395!

NEW DRIVE SPECIALS		REFURBISHED SPECIALS	
Micropolis 330MB 16ms SCSI drives	$395	Maxtor 213MB 15ms IDE hard drives	$295
Fast IBM-compatible SCSI controllers from	$25	Maxtor 640MB 16ms SCSI hard drives	$795
Complete internal CD-ROM kits	$189	SyQuest SQ555 44MB cartridge drive	$139
NEC portable SCSI multimedia CD-ROM	$289	1300MB 15ms complete drive kit with cache card	$1050

To qualify for these great dealer prices, just purchase 2 or more identical units. Large quantity discounts available.

We Offer Trade-In Credits!

Disk◦Drive◦Depot
Full selection of hard, optical & tape drives



500 Lawrence Expressway
Sunnyvale
408.738.3895
Open 10-6 Tues-Sat

HARD DRIVE SUPERSTORE

Featuring: *...Super Discounts!*
CONNER Quantum Maxtor
and more...

105mb $189 120mb $219 213mb $309
Quantum240mb $389 540mb $829 1.2gb $1319
PowerBook80mb $319 PowerBook120mb $399

••• IBM-Compatibles / Macintosh •••

Dealer, Corporate, School SuperDiscounts!

BEST PRICES! CALL FOR LATEST PRICES AND SPECIALS! CALL US LAST! **FREE SHIPPING!**

DATAVOX 1-800-443-2377
2009 O'Toole Ave., San Jose, CA 95131 Visa/MCard Welcome

Computer Insurance

SAFEWARE
INSURES YOUR COMPUTERS!

Full replacement of hardware, media, purchased software. From $49 yearly. Covers fire, theft, power surges, other accidents. Blanket coverage; no list of equipment needed. Low $50 deductible. Call for information or immediate coverage.

☎ **1-800-848-3469**
Local (614) 262-0559

SAFEWARE: The Insurance Agency Inc.
2929 N. High Street, PO Box 02211
Columbus, OH 43202

Data Recovery

AVOID CO$TLY DATA LOSSES NOW

DISCOVER ELECTRONIC VAULTING

*DATA RECOVERY	* CONSULTING
*BACKUP & RESTORE	* SEMINAR & ASSESSMENTS
*HARDWARE & SOFTWARE	* PROJECT MANAGEMENT
*COMPLETE SYSTEMS	* IMAGING SYSTEMS

edi ESSENTIAL DATA, INC.

CONSULTANT INQUIRIES WELCOMED
CALL ESSENTIAL DATA, Inc.
1-800-795-4756

Data Recovery

Classifieds

Hardware

WARNING

Your PC is an open door to cranks, snoops and viruses!

Stop them cold with the **Boot Sentinel™**

Try it out on your PC! *Call or write today for a* FREE DEMO DISKETTE

SentiSoft
4480 Treat Blvd., Ste. #137B
Concord, CA 94521
TEL: (510) 427-7176

Backup power supply $165, new, 225w. Protects against spikes, surges, blackouts, (20-30min.), and equipment damanging brownouts. (415)456-7000.

Mac POWERBOOK 100 4/40 (new) $1149, Mac IIFX 4/80 E.K.B. $3099, Mac IICI 5/120 E.K.B (demo.-new) $2599, Mac IICX 5/40 E.K.B. $1999, Mac Quadra 700 4/0 (new) $3899, Mac SE 30 5/40 S.K.B. $1699, Mac SE 4/40 S.K.B. $899, Mac SE 1/20 S.K.B. $749, Mac + CPU $389, Laserwriter IINT $1599, Outbound Notebooks (new) lowest, 52MB ext. HD (new) $299, 40MB HD (new) $259, Mac IISI Nubus Card (new) $149, Apple IIGS Color SYstem (complete) $879, Apple IIe System (complete) $499, Apple IIC/IIC + $249/ $349. Other Mac/Apple II's CPU's & Peripherals (new & used). Call for excellent pricing and daily specials. M.P. COMPUTER MICRO SYSTEMS (415)960-1514/FAX(415)968-0509.

WHOLESALE PRICES. Tape backup 525 SCSI $685. 1GB $829, 2GB-2.4GB $1155, 2-8GB $1290. Optical drive 1GB $1695. 80MB W/D $195, 120MB $239, 213MB $320, 300 MB Fujitsu IDE 256k 12ms 5yr warranty $635, 520MB Fujitisu IDE 256k Cache 12ms 5 yr warranty $899. CD-ROM w/ card $245. soundcard w/ spkr & microphone soundblaster compatible $99. 5 CDROM titles for $99. We do Repairs, trade for upgrading, Memory Uprgrades, Optical Drives, & MathCO (408)997-8380. For vendors (408)997-6944.

CLEARANCE SALE. BLOWOUT PRICES!!!!!!! Compaq Port. II w/40 MB/best offer; IBM original PC - $79; Compaq Deskpro 286 complete system w/ monitor- $99; 1 MB memory card (expandable to 4MB) for HP Laserjet II & III printers - $69. Supermac 8-bit video cards (10pieces - all new) make an offer; 40MB ext. HD for Mac w/ carry case - $229; Mactops 3.1 - $79; IBM OS/2 - 5.25" - $80; M/S DOS 5.0 upgrade - $45; Kanai print sharing box, Procom 1.2 MB ext. FD for PS/2, HP tax font, Compaq LTE battery pack, IBM SDLC adapters, Epson LQ1050 tractor - Please make an offer for any or all equipment. Please call Gigabytes at (510) 440-8032 or fax us at (510) 440-9099. WE ALSO DO REPAIRS AND UPGRADES AT VERY COMPETITIVE PRICES - JUST GIVE US A CALL AND WE WILL GIVE YOU A QUOTE!

Hardware

286/10, 1MB, 42 MB IDE, 1.2 FD, Mono Keyboard, $450. Hi-Res, 415 dpi, PostScript printer, $650/obo. IBM XT, 640K 21MB HD, 360FD, Mono keyboard, $300. (408)727-8338.

UNITEK Hard Disk Repair. CONNER, SEAGATE, MAXTOR, PRIAM 40-59 $2.50/MB, 60-79 $2.25/MB, 80-99 $2.00/MB, 100-149 $1.75/MB, 150-199 $1.50/MB, 200-299 $1.25/MB, 300-399 $1.05/MB, 400-599 $.95/MB. Call Now! (408)395-0382.

Apple/MAC Products at Great Prices! We carry new and used Macintosh and compatible equipment. Please call or fax or for more info or pricing- GIGABYTES (510)440-8032, Fax (510)440-9099. We also do repairs!

IBM at great prices. IBM model 30 286 system with 30 MB drive IBM 8513 super VGA monitor with IBM mouse only $500. For more info and prices on IBM products call GIGABYTES (510)790-0961, fax (510)790-0915. We also do repairs.

Laptop Toshiba 5200E $900 40mb/HD 2MB RAM (408)997-6944.

Small desktop XT computer with 3.5" FDD, serial, pakal, game, CGA/Herc. display adpt., 256K RAM up to 640K only $49. Unopened fac. box monitor/keyboard sold separately. Hurry! send UPS (415)824-4005.

DONATE YOUR COMPUTERS to a genuine non-profit organization. We'll put it to work training students in a school or rehabilitation center. Get Tax Benefits and a Good Feeling! (415) 964-4064 the Computer Recycling Center, Inc.

USED EQUIPMENT: HP Vectra 286 $250. IBM XT 20M $150. IBM 50Z $350. Compaq DP286 $250. Compaq Port $95. Compaq Port 10M $125. Apple IIe $75. Apple IIGS $800. monitors from $40. Dot-matrix & Lasers UPS from $200. PCR (408) 453-9322.

386/387/33 MHZ 256K Cache, SVGA. 120MB HD, 4MEG RAM, 1.2 & 1.44MEG FD (new) $1100. Call (408) 956-9705.

Flatbed Scanner - UMAX 630C, 600dpi, 24bit, 16 million colors, Interface card, software, manuals. New $950. (415) 775-9305.

Apple RGB Monitor 14" high resolution. Excellent condition. $300. (510) 676-4214.

Modem - US Robotics courier HST with ASL 300 to 16,800 BPS. New - warranty card. (408) 244-9692.

Hardware

486DX2-50, 213MB, 4MB MEM, 2 floppy, SVGA card and monitor, mid toner. Loaded with software. $1400. (415) 468-8423.

386 33MHz Mother Board 4MB RAM $240. (510) 656-3201 David.

MICRO NETWORK SOLUTIONS. Buy, Sell, Trade, Repair and Upgrade for IBM PC compatible. (415) 979-0788.

IBM PS/2 MOD 80: 8MB RAM 400MB HD $1295., like new HP Paintjel XL $995. (818) 284-1103.

Supra Modem 9600 fax with 2400 data $49 under warranty. Call (310) 602-2076.

TOSHIBA 1200XE 1MB RAM 40MBV HD, extra batteries, 2 power supplies, software, case, $1000/OBO. (415) 961-2737.

Niscan/GS hand scanner for Windows. 400 dpi, 256 true grayscale. w/software. $190. (510) 745-0203.

SONY CPD-1304, 5VGA, .25 Dot pitch, 1024-768, $380. Call (415) 578-8401.

Euerex Ram - 10,000 memory board with 10MEGS 80NS DRAM; all chips perfect; setup software $300. (415) 948-2060.

14" SVGA 1024x768 NI 0.28DPI Front Control Panel still under warranty. $280. (510) 524-4108.

Laptop Dell 325NC, 120HD, 8MB RAM, fax modem, case. Still in box! $2,500. (510) 778-4127.

Mac Tape Bkup + tapes + sftw $300. Localtalkconn $15 ea. (408) 251-7551.

System: Verticle HD, Entel 286, 1m RAM, SamSung VGS Monitor, Everex keyboard, mouse, DOS, Lotus 123, WP5.1, cables. $250/offer. Marlane (510) 735-1623.

28" SVGA colour monitor 1024x768 resolution for sale $1800 ono tel: England 0915364410.

Flatbed scanner - UMAX, 600DPI, 16.8 million colors, interface card, software, manuals, new $950. (415) 775-9305.

U.S. Robotics 14,400bps Dual Standard modem, line rates to 38.4K. Excellent condition, $450. (510) 736-5414.

386 Mother Board w/ math coprocessor $200 2-65MEG H.D.'s (RLL) w/controller $200 (510) 828-5202.

386-Laptop Toshiba 5100 2MB RAM/40MB HD $1000. Flatbed scanner Dest PC-1000 $750. (916) 392-9264.

Apple Laserwriter II NTX. Letter, legal, trays. Extra toner. $1375/offer Sean @ (415) 960-1915.

340 Megabyte F.H. SCSI and ESDI Disk Drive for sale. $250 each. (415) 347-3126.

Hardware

HARD DISK, 42MB, Seagate ST-251-1 w/ controller. $100. San Mateo (415) 347-8442.

Sparc 1, complete color system 28mb RAM, 1gb disk, CD-ROM, tape, all accessories. $5500/OBO (415) 824-0932.

Nextstation 8/105, Improv, Mathematica, 17" monitor, 400 DPI laser printer, fax modem, $4250/OBO. (415) 665-5302.

Soundblaster Pro-Basic. Like new. $130. (510) 284-2619.

386DX-40Mhz Computer, VGA Color Monitor, Conner HD, Two Floppies - $600. (415) 343-7302.

MIRACLE - music learning system (for IBM) keyboard, software, and extra songs. Original condition. (415) 566-1142 $300.

APPLE IIe Computer, 2 drives, monitor $150/OBO. Epson EX-1000 Wide-Carriage Printer $175/OBO. (415) 981-3774 Jack.

LAPTOP 386SX/16 1 meg RAM, 40 meg HD, VGA, $800. Epson MX-80, NEC letter quality printers $50 each. (415) 824-9177 David.

386/33/64K, 84M IDE, 1.2M keyboard, mono, complete system. $430 firm. (415) 965-3308 eve.

PCLimited 286, 21Mbyte, 1.2M floppy, mono, $350. (415) 973-4658.

Terminals for sale, Wyse-150 (3), Wyse-160 (1), Wyse-325 color, Tandy DT-100 (2), $25-300/offer. (510) 820-7920.

SHARP WIZARDS! OZ-5200, 64K, $115; OZ-7600, 32K, $115; OZ-7620, 64K, $155; OZ-8200, 128K, $195. (415) 456-5655.

HP Laserjet III, 4MB, Postscript, Letter & Legal trays, 4 toners, excellent condition. $1500. (415) 468-4741.

386sx 8mb, vga, $600 Hard drives: 106mb ESDI $250, 213mb SCSI $300, 106mb IDE $175. (510) 537-5869.

Mac SE/30 8/160 Super Fast; Perfect Condition; can easily add color. $1500 obo. Randy (415) 749-4672.

MAC SOLUTIONS. Sale, upgrade, repair and referrals. (510) 793-9285.

Amiga 2000 "Toaster ready" GVP 68030/68882 8 32-bit DRAM HD more $2800/OBO. Pat (415) 647-7969.

MacIIcx 8/120 (brand new Maxtor HD) $2300; QMS PS-410 laser printer 300dpi $1500. (415) 960-3413 Midpeninsula.

Hardware Wanted

I buy used computers and parts. Top money paid. Please call Ernesto (415) 668-2318.

Laptop, XT or better, 10MB HD or better, battery, gift for geek-wannabe bro. (707)792-0363.

Hardware Wanted

286 Laptop with 10MB Harddisk or similar. Low cost. Good condition. Call Scott (415) 285-4035.

PLEASE HELP!! The Orchid Database, a nonprofit conservation organization, needs hard drives, portables, and other hardware. Donations are tax deductible. Please call 1-510-235-8815.

Personal

Sexual Dates Bay Area Men/Women/Gay/Lesbian/Bi-Sex Females. 1-900-844-2121($1.95 per minute).

Repairs

PC REPAIR. Inexpensive Repair of IBM PCs or Compatibles. Upgrades of all types. House Calls and Small Businesses Welcome. Guaranteed Lowest Prices. Please Call Ernesto at (415) 668-2318 or (415) 576-5057 (pager).

Repairs

WE WILL BEAT ANY ADVERTISED REPAIR & SALE PRICE

HARD DRIVE REPAIR PRICE			SALE PRICE	*DATA RECOVERY
CAPACITY	MFM/ IDE/RLL	ESDI/ SCSI	MFM/RLL ESDI/SCSI	MFM/RLL/IDE ESDI/SCSI
10 – 19MB	$50	N/A	$60	$180
20 – 29MB	$55	$65	$69	$230
30 – 39MB	$65	$75	$79	$280
40 – 49MB	$85	$95	$119	$330
50 – 85MB	$115	$125	$169	$380
86 –119MB	$135	$145	CALL	$430
120 –160MB	$175	$185	CALL	$480
161 –350MB	$245	$255	CALL	$580
351 –700MB	$325	$335	CALL	$780

* Data recovery includes repair of the drive.
*No charge if we are unable to recover data.

FLOPPY DRIVE REPAIR PRICE		SALE PRICE
5.25" (360K & 1.2MB)	$20	$22 & $35
3.5" (720K & 1.4MB)	$25	$30 & $35
3.5" PS/2 (720K & 1.4MB)	$35	$35 & $50

WE BUY & TRADE-IN WORKING OR NON-WORKING FLOPPY & HARD DRIVES

MONITOR REPAIR PRICE	
•Any Mono	$45
•Any CGA	$60
•Any EGA	$65
•Any VGA	$75
•Any Super VGA	$80
•Any Multisync	$95
•Any Terminal	$70

CRT AND FLYBACKS EXCLUDED

PRINTER REPAIR PRICE	
•Any Dot Matrix Printer	$50
•Any Laser Printer	$55

SPECIAL SALE OF THE MONTH

• Tandon 42MB RLL	*REF*	$89
• 1.2/1.44M Floppy Drive	*NEW*	$46/41
CONNER/MAXTOR/WD/SEAGATE		
• 40MB IDE	*REF*	$109
• 80MB IDE	*NEW*	$189
• 105MB IDE	*NEW*	$199
• 120MB IDE	*NEW*	$219
• 170MB IDE	*NEW*	$249
• 210MB IDE	*NEW*	$309
• 245MB IDE	*NEW*	$319
• 340MB IDE	*NEW*	$469
• MFM/RLL Controller (AT or XT)		$39
• IDE Controller w/I/O		$15
• Monochrome Monitor		$25
• Printer		$35
• 80MB IDE	*NEW*	$199

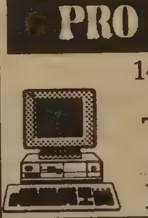
SYSTEMS

XT SYSTEMS...$69

- 640K Memory
- 2FD (360K)
- Monochrome Card
- 2 Parallel Port
- XT Keyboard

XT SYSTEMS W/20MB HD $139
AT SYSTEMS...CALL FOR THE BEST PRICE!

PRO COMPUTER SERVICE COMPANY



14392 Hoover St., Suite B3
Westminster, CA 92683
Tel.: (714) 891-8293
(800) 822-PRO2
Fax: (714) 891-3269

VISA

MasterCard

Classifieds

Repairs

Repairs

Repairs

MONITOR REPAIR

WE REPAIR: ANY SIZES – ANY BRANDS
SVGA – VGA – EGA – CGA – MONO – TERMINAL
and SUN WORKSTATION MONITORS

Two days turnaround * Free estimate * Free pick up * Free delivery
120 days warranty both parts and labor * Lowest price

CORPORATE ACCOUNT WELCOME
WE BUY AND PAY TOP PRICE FOR SURPLUS MONITORS

California Monitor Services
4661–A Lafayette St.,Santa Clara, CA 95054
TEL: (408) 986–8327 FAX: (408) 986–8328

TERMINALS & MONITORS REPAIR

S-tech J

- FREE Pick-Up and Delivery
- 4 Months Warranty on Parts & Labor
- 2 days turnaround
- Lowest price guaranteed!

SAN JOSE REPAIR TECH

THE FINEST IN SERVICES AND SUPPORT

503 Candlestick Way - San Jose, CA 95127
PHONE: (408) 729-8683

MAC tronix

- New & Used Systems Sales & Service
- Network Design and Maintenance
- Electronic Transparency System
- Paperless Documentation
- Data Recovery
- IBM to MAC Data Transfer
- On-site Service Contracts
- We buy used equipment
- Interactive Multimedia
- Software Training

45999 Warm Springs Blvd. Suite Nine • Fremont, Ca. 94539 • (510) 438-0833

COMPUTER REPAIR FREE DIAGNOSTIC

WHY PAY $40, $50 or MORE

Computer Training Academy will run a thorough diagnostic service check absolutely FREE!! Call Now for an appointment to have your equipment evaluated Today!

408-441-6990 ask for Mr. Stevens

CTA Inc.

MONITOR REPAIR

MULTISYNC	$90.00
SVGA & VGA	75.00
EGA	65.00
RGB HI-RESOLUTION	90.00
OTHERS	CALL

Flat-rate (CRT & FLYBACK EXCLUDED

DM MONITOR SERVICES
657 LA GRANDE DRIVE #1
SUNNYVALE, CA 94087
PHONE: (408) 245-8735

LASER PRINTER REPAIR

$59.00 + PARTS

(Seven days a week, 24 hours a day) • FREE Pick Up & Delivery in Bay Area • 1 Year Parts • 5 Years Labor Warranty

408-223-0433 • 415-777-5449

TCRC • LPR Division

C:\Computer & Monitor Sale & Repair

Free Advice & Carry-In Check Up. State Reg. No. E29924

$75+Parts* PC Compatibles & Macintosh Monitors & Printers

SERVICE CITY
(510) 475-0747

1655 Whipple Rd.
Suite 22, Hayward, Ca. 94544
Fax (510) 475-7739

*Carry-in service rate. tm055

FACTORY LOW PRICES. SAMS 386-486 Computers & Network Servers. Sales, Repair, Upgrade. Network installer and cabling. Hector Phone/Fax (415)821-0122 Pager 915-0346.

ON-SITE PC REPAIR. No travel charge, in San Jose. HATCH CONCEPTS (408) 226-2625.

The Total Mac. Repairs for Mac systems, LaserWriters and printers. Onsite and while you wait service, free p/u & delivery in SF. 3139A Geary in the Richmond District @386-4320.

UPS REPAIR & BATTERIES. Batteries are usually the problem. Call for information (408) 986-8300.

Monitor and Terminal Repair. $75 Most Models. Warranty. 30 years experience. Call Beyond Repairs, 510/783-6805.

PC Repair IBM, PC's or compatible. Upgrade, house calls, free diagnosis. (408) 997-6944.

Bay Tool Electronics Co.
Monitor & Terminal Repair.
All Brands, $65/each, most parts free. 180 day warranty.
BEST IN BAY AREA!
(415) 637-3968
957-R Industrial Road
San Carlos, CA 94070

UniTek Co.

Hard Disc Services
Specializing in repair of PRIAM
CONNER, MAXTOR, SEAGATE Hard Drives
From 85¢ per MB
(408) 395-0382

MACINTOSH & PC

DRIVE REPAIR

ALL DRIVES
LOW RATES
ALSO BUY DRIVES

DATA RECOVERY TECHNOLOGY

(408) 943-9401
700 CHARCOT CIRCLE
SAN JOSE, CA 95131

Repairs

Repairs

Repairs

EXPERT

Monitor Repair

Our Commitments To Services:

- B&T Protection Plan
- 6 Month Warranty Labor & Parts
- Loaners Available
- Free Pickup & Delivery (Most Bay Area)
- Free Estimate
- Fast Turnaround Times

Repair & Maintenance:

- All Major Brands Monitors
- Printers/ Laser Printers
- All Major Brands Keyboards
- Macintosh Display/Computers
- Peripherals/Computers
- Display 16" - 21"

Corporated Account Welcome * Discount Individual/Corporated

B&T Services
3764 Polton Place Way, San Jose, CA 95121
Voice / Fax: (408) 223-2722

Services

Services

Services

Diablo

Printer Specialists

- Sales & Service
- New & Used Printers
- All **Diablo** Models
- Parts & Accessories

Certified **Diablo**
Service Center

EXPANSION
PRODUCTS COMPANY
Mountain View, CA
FAX (415) 965-7273

(415) 965-7222

Slides

4000 Line 35mm or 4x5 from most IBM and Mac files including TARGA

510.451.3686
photo+design

ON-SITE/ OFF PC Training: Roxann Lewis, Certified WordPerfect Resource offers training in Excel, Paradox, Windows, WordPerfect DOS/Windows, Harvard Graphics, Lotus 123, PageMaker, More! 510-283-6221.

Personalized Consultations. Run your own computer business. Become a computer professional. (415)728-5910.

LASER PRINTER REPAIR

APPLE • HP • QMS • BROTHER • & More
On Site Service • Tune-Ups • Service Contracts
FREE ESTIMATES! • Mention this ad for 10% off

LaserSharp (San Jose) **Authorized Technicians**
(800) 894-8974 or (408) 224-0520

Don't Delay, Do it Today!!!

DUPLICATION

IBM OS/2 • MACINTOSH • APPLE
COMMODORE • UNIX
24 Hour Turnaround.
Fastest in the West,
No Minimums!!! Custom Printed
Tyvek Sleeves & Labels
Optical Text Scanning

I.D. DISK CO. 415-883-4628
NATIONWIDE 1-800-882-6454

DRS

Repair & Sale
Hard Drives & Floppys
Data Recovery

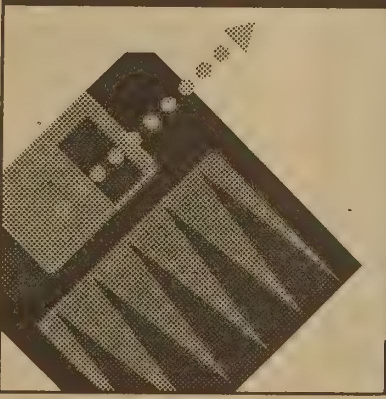
SCSI ESDI ST506 PS/2 IDE
Novell XENIX/UNIX MACS

2122 Adams Avenue ▼▲ San Leandro, California 94577 ▼▲ (510) 430-0595

Drive Repair Services
Corporation

6151 Golfview Drive ▼▲ Bloomfield Hills, Michigan 48301 ▼▲ (313) 645-6211

SOFTWARE DUPLICATION



Complete Software Manufacturing Solutions

- Duplication 100% Guaranteed
- Ultra Competitive Pricing
- Custom Labels/Sleeves/Manuals
- Packaging & Assembly
- Highest Quality Media & Equipment
- Fast Turnaround
- Volume Discount. Call for Best Price!

APC, Inc.

29620 Union City Blvd. Union City, CA 94587
Local 510-489-8677 Fax 510-489-8678

800-666-1007

Classifieds

Services

DATA RECOVERY

24 Hour Turnaround • Free Estimate

DATA-ONE
(408) 434-1002

940 Rincon Cir. San Jose
(HWY 880 & Montague)
9-5 Mon thru Fri

COMPUTER REPAIR FREE DIAGNOSTIC. WHY PAY $40, $50 OR MORE. Computer Training Academy will run a thourgh diagnostic service check absolutely FREE!! Call now for an appointment to have your equipment evaluated today! (408)441-6990 ask for Mr. Stevens CTA Inc.

Inexpensive printer repair. Dot Matrix, HP Laserjets, Daisywheel Printers. Please call (415)668-2318.

Business Consultant cash flow, accounting, business start-up questions, taxes, marketing Free consultation Len Marsh (415)591-6664.

Slides

Slides $8
4x5 Transparencies
PC Imaging Specialists
Presentation Graphics
Quattro Pro
.TGA .PCX .TIF .GIF
McLain Imaging
tel: (408) 252-6266 ~
bbs: (408) 252-6265

Software

CALL OUR BBS & ORDER ON-LINE
Ask for a DEMO program

APPLICATION SOFTWARES:
- POS & General Acctg
- Restaurant POS & Mgmt.
- Bakery POS & Mgmt System
- Medical & Dental Practice
- Veterinary Practice
- Patient Accounting & Claims
- Legal & Court System
- Auto Body Repair System
- Container/Shipping Mgmt
- Trucking/Transportation
- Auto/Truck Leasing/Rental
- Public Warehousing
- Sales/Service Management
- Manufacturing Management
- Hotel/Resort Management
- Video Store POS & PPT
- Wholesale Jewelers Mgmt.
- Property & Rental Mgmt
- Product/Services Distribution
- dTailorMade SBT Enhancements
- BarCode Softwares
- Popular/General Softwares
- Utilities/Program Tools

HARDWARES:
PCs & MACs
Notebooks
MultiUser I/O
VGA MultiStation
CD-ROMs
Drives/Controller
Laser/Mtx Printers
Modems/Fax
Tape/Optical Drv
Removable Drv

O/SYSTEMS:
DOS & OS2
DR. DOS
UNIX/XENIX
Qemm/DesqView
VM/386
Concurrent DOS
Windows
PC-MOS

OFF-SHORE
S/W DEV at
VERY LOW COST
QB4.5, C, ASM, CLIPPER, dBASE, COBOL, FoxBase, FoxPRO, Single/Multi-User

XBASE NETWORK SYSTEM
BBS : (510)687-3633
TEL : (510)687-3629

SBT
US#1
MS
MAGI
MAX
Pro
MEDSOFT

Services

PHOTOGRAPHY FOR BUSINESS. Computers, lots more comercial experience. Call Len Cook for reasonable bid. (510)790-6079.

Macintosh/IBM Systems & Printers. Rentals, Repairs & Upgrades. Sales - New & Used. Classrooms. PC Support. PCR (408) 453-9322.

VIRUS PROTECTION SERVICE. Protect yourself from harmful viruses. Call Dan or Mike to schedule installation of unopened virus protection software on your PC or PC-LAN. Dan (415) 854-9542 or Mike (408) 997-8386.

Software

Are you sure you're getting all of your health benefits? Claim Chek/macClaim Chek's master records remembers payer, patient, provider and subscriber information. Keep track of who's paying what, paid/unpaid claims, deductibles and copayments, types of claims, and single or multiple policies. Add-on modules available for claim form printing. On-line help. 4 Mice rating-MacUser 12/92. Macintosh or MS Windows $44.99 + $5 S/H

TeCorporation—Developers of software for everyday living
P.O. Box 140, Campton, NH 03223
Tel: (603) 726-7177 Fax: (603) 726-8818

TrueType fonts for Windows 3.1. Shareware. 100/$20. 300/$60 360+ Postscript fonts $72. (415)728-5910.

IBM Software. 100s to choose from $2 per disk. Send $1 (shipping & handling) for your shareware catalog on disk. Computer Allware PO Box 1060, Clearlake Oaks, CA 95423.

Software

New Software Products Wanted:

To acquire/license...By small successful software company... Fax brief synopsis of software capabilities & target market to:

Perfect Niche Software, Inc.
Fax: (415) 331-4200

FREE PRINTED 122 PAGE CATALOG 3400+ IBM Prgms. ASP Vendor Sunshine Software, 6492 South St. Suite 470, Lakewood, CA 90713.

DUPLICATION. Complete software manufacturing services. Unbeatable prices, quality and service. SAICOM (510) 770-8549.

WinTax for federal and state income taxes $29. Available for use for free at designated computer stores. (415) 856-0106 or (408) 746-0603.

10 MEGS FOR $10
"Sharewares' Greatest Hits"
Over 30 of the best Shareware/Freeware programs!
Specify 3.5" or 5.25" HIGH capacity disks.
Add $3 s/h.
Call or write for a FREE DISK CATALOG
ByteSize Software
95 Seaforo, Dept. E111
Laguna Niguel, CA 92677
(714) 363-0653

Electronics Tutorial Software Program. Over 1,000 screens, 48 modules of interactive information, schematics and help on DC, AC, analog and digital. Use for job preparation, review, or study. Entire program $30. IBM. (monochrome EGA/VGA). Tutor-Tech, 5591 Kimberly St, San Jose. (408) 252-3223.

HOW TO MAKE YOUR INTERVIEW DISK. Includes easiest to use expert system engine ever. $15. IBM-PC. Ron Heath P.O. Box 4833, Santa Clara, CA 95056.

Workplace safety program - meets CALOSHA requirements for illness and injury - customize to your business $50. (415) 488-0789.

Lotus IMPROV for NeXTstep. Spreadsheet/Analyzer, 1-2-3 compatible. New, unopened, unregistered. $200. (415) 343-0667.

Mac Software Blowout: Wingz $75/1.1, WriteNow $50/3.0 and $25/2.2, PersonalPress $90/2.0, Panorama $25/1.5. Offer/trade welcome (707) 795-4805.

New (shrinkwrapped) and used software, cheap! List, SASE to Jay, 1012 Bermuda Drive, Concord 94518

Software

Excel for Windows (new) $190. Dr. DOS 6.0 $30. (415) 941-2759/

Approach Database for Windows. Registerable $75. Jim (408) 241-5577 or (408) 985-1496.

New unopened: LightShip For Windows. $600/OBO. FaxIt For Windows. $55/OBO. Kevin (408) 946-4809 after 5 pm.

Library of the Future CD-ROM, #1.v.3.0 w/mouse support. Full text 450 books. $50/OBO. (510) 482-4159.

Micrografx Designer 3.1 New, unopened. $229. Call (415) 751-1839.

Software Wanted

NEW SOFTWARE PRODUCTS WANTED...To acquire/license...By Small Successful Software Co...fax brief synopsis of software capabilities & target market to: PERFECT NICHE SOFTWARE, INC. Fax: (415) 331-4200.

Employment Information

$200-$500 WEEKLY. Assemble products at home. Easy! No selling. You're paid direct. Fully Guaranteed. FREE Information-24 hour hotline. (801) 379-2900. Copyright #CA088850

WANTED: Highschool or college hacker-type for part-time application programming at small law-office in Walnut Creek. Must do Windows. (510) 937-1515.

900 NUMBERS MAKE MONEY! Put your computer to work! Outstanding guidebook, 24hr. recorded details 1-800-369-1410.

Consultants Network

Accounting

TAX & BOOKKEEPING SERVICES. Income tax preparation/year-end bookkeeping. Individuals, professionals, small businesses. (510) 540-6735.

Business Opportunities

Make $25,000 per year, part time, cleaning computers. For FREE information call 1-800-695-2569.

Finance

NEED CA$H?
We pay top $ for privately held notes, mortgages and trust deeds NATIONWIDE!
Personal Mortgage Invest. Co. (510) 278-9916

Engineering

Cesco Network Engineering
Design, Install, Maintain, Train
Novell, LanMan, Banyan, Unix
Bridges, Routers, Hubs, GtWys
3Com, Cisco, Synoptics
Competitive Rates
(408) 223-0980

PCB LAYOUT: Using Pads software, fast turnaround, satisfactory grantree, lowest rate. Fax or message (415) 493-6826.

Product Development. 3D CAD, Plastics, Electro/Mechanical, Prototype through production experience. Call for guide. (510) 783-3006

ENGINEERING: POWER SUPPLIES Des/dev power supplies & battery chargers. Circuit Power, Don Frevert (408) 739-0303.

MECHANICAL DESIGN AND DRAFTING. ACAD Services AT Reasonable rates (408) 926-4128.

Finance

THE DILLON GROUP
International Commerce & Finance
(408) 452-1874

ARRANGED
- Business Loans
- Commercial Loans
- Accounts Receivables
- Working Capital Loans

5K-25M
(Loans will be arranged pursuant to a California Department of Corporations Personal Property Brokers License)

General

INEXPENSIVE NOVELL NETWORKS
- System Design and Installation
- Software Configuration
- Cabling Installation
- Service and Support

References available
EASY Computing

Free Initial Consultation
(415) 668-2318

LOOKING FOR SMALL BUSINESS SOLUTIONS?

LET US MAKE YOUR PERSONAL COMPUTERS WORK FOR YOUR BUSINESS

PAY ONLY FROM INCREASED PROFITS

HATCH

CALL
408/226-2646
TO FIND OUT HOW!

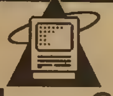
Specialists in Small Business Improvements

Professional Technical Services
DOS, Windows & OS/2 support for business
• Setup & configuration • Networks • Communications •
• On-site support • Data recovery • Programming • Debugging •
Database & Spreadsheet programming - *Excel & Paradox*
On-site support available 24 hours a day - 7 days a week
John Purins 415-571-8673

Consultants Network

General

MACINTOSH CONSULTING



Yoyodyne Systems

Apple Certified Tech.
- On-site Mac Training
- HW/SW Installs
- Networks
- Purchase Advise

(415) 879-0285

GET MORE OUT OF YOUR COMPUTER!

Friendly computer wizard with experience will help maximize your use of:
- ■ Accounting
- ■ Word Processing
- ■ Database
- ■ Spread Sheet

Free first consultation • Sampson Information Systems
415/469-9852

MORE THAN ONE LOCATION? COMMUNICATE! Automatic, Unattended PC Communications. Appropriate. Inexpensive. LAN interface. Effortless Offsite Backup Available. Augustine Associates. 415/285-7064.

COMPUTER CONSULTANT/ TUTOR HW/SW Installations, Configuarations, Friendly Personalized Tutoring . $25/hr. AAA COMPUTER NUT (408)376-0987.

Computer Problems? For inexpensive trouble shooting. Call PC Consultants Now! (415)589-3385 or (510)569-9003.

LAN

NOVELL NETWORKS, CNE. Design and Installation, Hardware and Software Configuration, Plus Support and Service. Free consultation. COMTEQ COMPUTER CO. (408) 988-4440.

BATTERY BACKUP FOR NOVELL with shutdown and monitor software 750VA, new, $399. (408) 986-8300.

NOVELL Certified Netware Engineer. Installation, service and troubleshooting 10 years experience. LAN SOLUTIONS, Novell authorized reseller. (415)579-1004.

FACTORY LOW PRICES. SAMS 386-486 Computers & Network Servers. Sales, Repair, Upgrade. Network installer and cabling. Hector Phone/Fax (415)821-0122 Pager 915-0346.

LAN

Novell Certified NetWare Engineer

LAN & WAN Installation, maintenance, administration, system configuration, trouble shooting, connectivity, and requirement definition. If you have a system in place, we can fine tune it. We are your one stop networking solution.

☎ Call Michael @ (415) 941-2647

NOVELL SPECIALIST
-Install, Service, Troubleshoot
-Custom Network Software
-Backup Service & Data Recovery
-Certified NetWare Engineers
ABSOLIC COMPUTING
(415) 858-2680

Legal

INCORPORATION. Nevada $399, CA $299. Do yourself books Trademark, Copyright, Patent (408)559-3949.

Legal

BANKRUPTCY

Stop lawsuits, wage garnishments, & calls from collection agencies.
Free consultation.
Experienced Bankruptcy atty.
San Jose (408) 295-0470
S.F. (415) 552-6358

Programming

TechnoSoft Corporation

Customized Software Conversions
Rightsizing or Downsizing
We Can Get You There Quickly

AS/400	ORACLE	Pascal
PC/LAN	UNIFY	Assembler
Mainframe	SYNON	Clipper
PRIME	DOS	Btrieve
WANG	COBOL	dBase
DEC	C	FoxPro
UNIX	Fortran	Foxbase
		AutoCAD

QUALITY...OFF-SITE...RELIABLE
LOW RATE FOR INITIAL PROJECT
Call Terri At:
(415) 986-5800
Extension 32

CEEPRO SOFTWARE
Dbase C FoxPro
Multi-user GUI
Business Applications
for Windows
(408) 236-2072
Kim (415) 964-6593

CUSTOM PROGRAMMING
dBASE
Clipper
FoxPro
Gail Parker
415/493-8821

Business Applications Programming
Contact Jim at:
(415) 747-0748
Including:
Dbase Clipper FoxPro

CUSTOM PROGRAMMING
- FoxPro
- Clipper
- dBase IV
- Accounting Systems
- Bar Code Systems
- Multi-user

NETWORK INSTALLATIONS

NOVELL®

SINCE 1983 • MEMBER BBB
AccounTech
408/995-5511

MACINTOSH MY SPECIALTY
Spreadsheet · Database · System Programming
Installation, training, troubleshooting
purchase advice — Mac and PC
Stanford C.S. degree · good references
Ken Brooks 415/856-1224

◆ **Boca Raton** ◆
Business Software Developers
- Paradox Programming
- Fox Pro Programming
- Cobol Programming
- PC's, LAN, IBM Mainframe
- User System Documentation
- Dial-up Support
- On-site or off-site Development
- On-site Testing
- Lifetime Warranty

1291 East Hillsdale Boulevard, Suite 217
Foster City, CA 94404 415/572-7102

Best competitive rates. Programming/Maintenance Offsite at our location. Unix, Dos, Windows on PC, C++, Assembly & Cobol. Quality at the best price. We work with consultants. EMail @MCI ID: 542-5787. ARX voice: (408)-736-3770. ARX fax: (408)-733-6548. ARX Software Inc.

CUSTOM DATABASES FoxPro, FoxBase, dBase, Clipper, Paradox. Multi-user systems, software modifications, code generators, PC/LAN, SBT. Walter St. John: voice (510) 548-0129; pager (510) 310-2080.

FOXPRO, CLIPPER, DBASE, UNIX/XENIX, BBS SYSTEMS. Specializing in design and development for Single and Multiuser Business Applications. Professional solutions at reasonable rates. Just Computers! (707) 769-1648.

Experienced C programmer, GREAT PRICE. Realtime, Excel, Lotus Applications, offsite, David Graham (510) 547-7117.

ICE Ltd. - Overseas S/W development in Cochin, Kerala, India. DOS, UNIX, Windows, C, C++, Cobol our specialty. Rates from $18/hour. Satellite link capability. Local agent at (408)-732-8851 or EMail on MCI TO: sreekumar EMS: VSNB/MCI ID: 495-5791. MBX: f=sreekumar MBX: g=pck.

Programming, Assembly, 8096 8051 Labtex, (408) 377-4824; fax (408) 559-7630.

OFFSHORE SOFTWARE SERVICES AT 50% OF YOUR COST! Data Entry, Software Development, QA, Maintenance, and Porting. DOS, UNIX and MAC. Contact REMOTE SOFTWARE SERVICES, 59 Lupine Ave, Suite 203, San Francisco, CA 94118. Tel: (415) 386-0984 Fax: (415) 386-0284.

DATABASE PROFESSIONALS: Mac: 4th Dimension, FoxBASE +, FileMaker Pro. PC: dBASE, FoxPro, Paradox, Clipper. Pinpoint Solutions (415) 323-6043.

WINDOWS 3.1 Interface Prototyping & Coding. Borland and Microsoft, C and C++. Effective Information (408) 358-8064.

Paradox, Custom Programming training and consulting. Single & multi-user. Novell Network Management Systems Solutions 408-684-2023.

VERY LOW RATE. Quick turnoround, offsite, C, dBase, FoxPro, Oracle, Clipper, Paradox, more, Haystack Systems (415)441-4891.

Computer Consultant. Custom Paradox Database Application Development. Call Andy at Computek Slutions (408) 241-0863.

Q&A by Symantec, "#1 Database Word Processor for Business" Expert Training, Programming. FLETCHER SYSTEMS (707)585-9282.

BAR CODE INVENTORY. Efficient "C" Systems. Quick Delivery. National References. 1-800-872-1182.

CUSTOMIZED COMPUTER TRAINING, PROGRAMMING, GRAPHICS AND DATA ENTRY SERVICES BY EXPERTS. GET HELP! (818) 241-0810.

Legal

IMMIGRATION

Law Offices of Paul M. Heller
Specializing in
Labor Certification & Work Visas for
Engineering, Computer, Accounting, Business, & other Professionals.

Also: family visa/US spousal cases; change to student (F-1) status; Treaty Trader/Investor (E-1/E-2); Intra-company transferee (L-1).

Individual, Bus. & Corp. Clients

Free Consultation!
415-291-8000

Tech Writing

Spanish Translation- Acccurate technical translation of manuals, instructions, letters messages. Carrali Design (408)737-8196

Documentation, customized manuals, help text and training materials for your software or application. Larry (415)692-0824.

Cal Tech Instruments

28048 Sandlewood Dr., Hayward, CA
Tel (510) 786-0701 Fax (510) 786-9809

NEW FP/HD/TAPE DRIVES

1.2 Floppy Drive	$ 53
1.44 Floppy Drive	47
80MB IDE Drive	170
130MB IDE Drive	212
170MB IDE Drive	235
215MB IDE Drive	295
250MB IDE Drive	325
340MB IDE Drive	438
120MB Tape Backup	155
250MB Tape Backup	203
250MB Trakker	408

VIDEO OPTIONS:

1MB SVGA Card	$ 52
VGA-256K(800*600)	25
Diamond Stealth 24w/1mb	157
14" SVGA .28 Monitor	243

MATH-CO ULSI:

387SX-16/20/25	$ 65
387DX-33	70
387DX-40	77

CASES:

Minitower 230W	$ 52
Medium Tower 230W	78

MOTHERBOARDS + CPU

486DX 33/128K	$ 398
486DX 33/128K VLB	438
386DX 40/64K	149
1 MB SIMMs 70	30
4 MB SIMMs 70	126
CPU	Call for Best Price
Static Ram	Call for Best Price
Laser Mem Oki/Pana/HP	$Best

MISCELLANEOUS:

Logitech Scanman	$ 232
Toshiba CD-ROM 200MS	495
CD-ROM 350MS	198
Sound Galaxy Nx Pro	120
Sound Blaster Pro Dlx	175
Fax/Modem(96/24)	49
IDE/IO/2S/1P/1G	13
101 Keyboard	19
Mouse	10

Consultants Network

Tech Writing

Dr. DOCUMENT
House calls for ailing
-Product Help, Guides,
-Manuals, Specifications,
-Document Management
(510) 527-8736
Have MAC/PC Will Travel

Training

Training–On-Site Or Here!
Need to understand your computer better?
★ Software? ★ Hardware?
Learn from professional instructors!
TRAINING UNLIMITED
1376 32nd Ave.
San Francisco, CA 94122
(415) 753-1848

Tech Writing

Instructors to lead classroom training on client site. PC and Mac applications. Send resume to JK&Associates, 2005 De La Cruz, Suite 135, Santa Clara, CA 95050.

ABC of Printing. Lecturer for DTP Designers. 40 yrs BizziBB 6363 Christies #407 E-Ville, CA 94608. .

MOVE UP WITH TECHNOLOGY. Learn Oracle, Sybase, Gupta and Client/Server tools and applications in small class. Prepare yourself for new career, downsizing and new applications. Call CompuEd (408) 253-4508.

Training

WORDPERFECT Certified Instructor. Planning, training, macro programming, document assembly. As profiled in InfoWorld. Kendall Callas (415)921-6850.

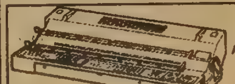
Mac Programming. Learn in 3 hours. Saturday 9-12, MT. View $79. Register (415)903-4922.

Flexible, Affordable Instruction
Day, Evening & Weekend. Today's Most Popular PC Software Packages.
Our Classrooms or Your Site. Windows, WordPerfect, PageMaker, 123, etc.
Systems Support Technology
415/252-1840 • Fax 415/252-1848

Services

Services

Services



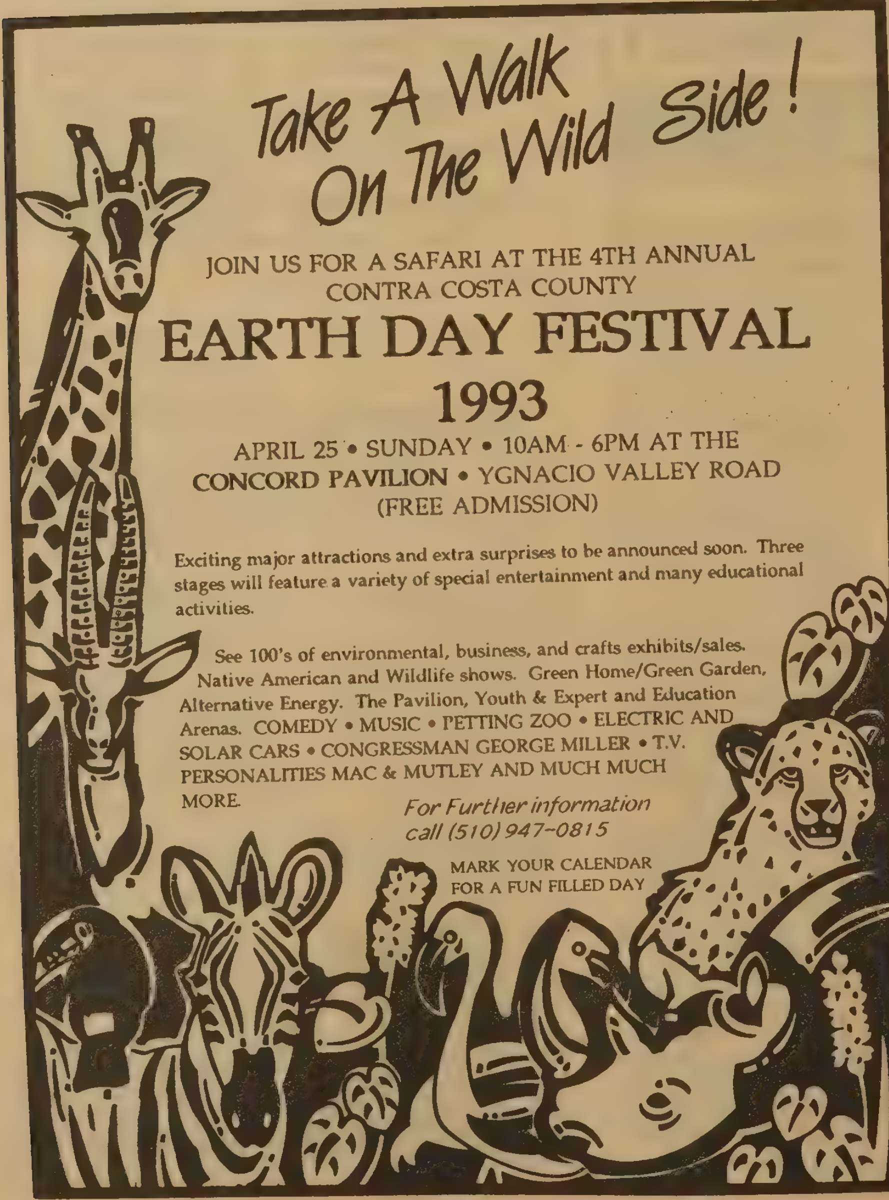
The Laser Co.

Toner Cartridges 36.99

We support 200 laser printers and Cannon photocopy machines. New chemical process to coat the drum (extends the life of the drum to 7 recyle times). 20% more toner than the original. Free delivery (Bay area only) 100% guarantee or your money back Fast Service...... (patent Pending)

Laser Printer Repair Service Free Brochure Call 408 972-7915

HP series I ,II and III , Apple Laser Writer Plus,IINT,IINTX. Cannon CX and SX engine specialist.
Free loaner, $ 20 diagnostics fee. **WE ARE LASER PRINTERS SPECIAL'ST**



Take A Walk On The Wild Side!

JOIN US FOR A SAFARI AT THE 4TH ANNUAL
CONTRA COSTA COUNTY
EARTH DAY FESTIVAL
1993
APRIL 25 • SUNDAY • 10AM - 6PM AT THE
CONCORD PAVILION • YGNACIO VALLEY ROAD
(FREE ADMISSION)

Exciting major attractions and extra surprises to be announced soon. Three stages will feature a variety of special entertainment and many educational activities.

See 100's of environmental, business, and crafts exhibits/sales. Native American and Wildlife shows. Green Home/Green Garden, Alternative Energy. The Pavilion, Youth & Expert and Education Arenas. COMEDY • MUSIC • PETTING ZOO • ELECTRIC AND SOLAR CARS • CONGRESSMAN GEORGE MILLER • T.V. PERSONALITIES MAC & MUTLEY AND MUCH MUCH MORE.

For Further information call (510) 947-0815

MARK YOUR CALENDAR
FOR A FUN FILLED DAY

MicroTimes Readers have Purchasing Power!

82% Are involved in purchases for their companies
64% Authorize Vendor and Purchase
Source: Beta Research West, Inc. Nov. '91

For Advertising Information Call:
510-934-3700
408-244-4400
213-851-8600
714-939-2809

TANSTAAFL

Difficult to pronounce, even more difficult to spell, easy to install, economical to buy and a cinch to use.

Print-Share
Easy-Share
PRINT SHARE
Only $299

"What our customers say . . .

"We have yet to exceed the buffer capacity even though we often drive Freelance graphics at full page 300 dpi resolution."

". . . gone are the memory requirements and control problems associated with local print spoolers."

"The installation is just barely more complex than plug-it-in-and-go."

"I had it running within 20 minutes of receiving it . . ."

"I am writing to let you know of the great success that we have had with your company's product. We currently have over forty people connected into the Easy-Share boxes."

"Since purchasing the Easy-Share for our lazer printer, our Processing Department has been running continuously without a flaw."

What our VAR'S say . . .

"Easy-Share devices stand out for their reliability, capability, and ease of use. We have now configured over 150 computer systems."

"Our clients have been very favorably impressed with your products because of their reliability, ease of installation, flexible configuration and cost effectiveness."

What the editors say . . .

"Priced very affordably."

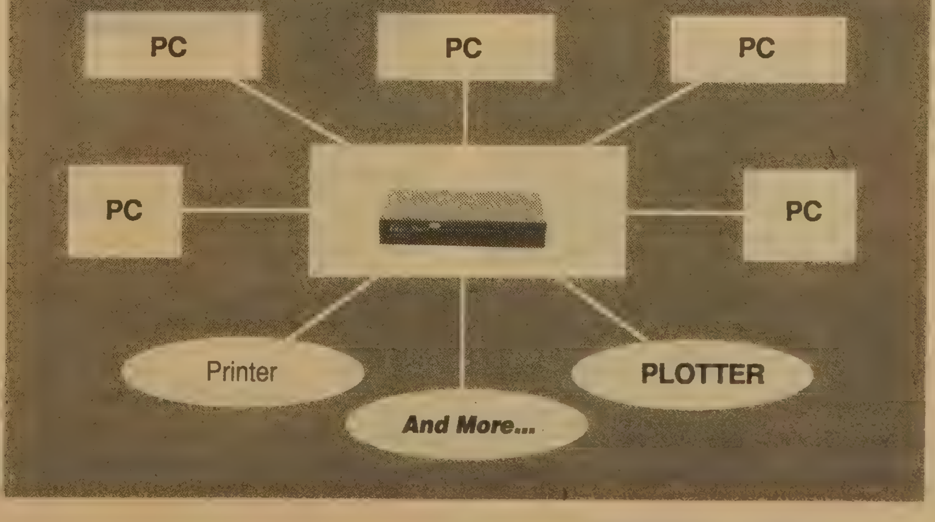
". . . just the right combinations of 'switchability' and buffering to solve most resource-sharing problems."

"It provides all the features most connectivity arrangements need, including software steering."

". . . a down-to-earth , practical solution."

Printer and peripheral sharing solutions.

- *Connect any combinationsof printers, plotters or modems.*
- *Guaranteed compatability with all of your application software.*
- *No more waiting to print.*
- *No software drivers to load or run.*
- *Automatic spooling.*
- *2 year warranty*



Call 1-800-776-5676 Today

Tanstaafl Mfg., Inc.
1800 Wyatt Drive, Suite 6, Santa Clara, CA 95054
408-748-9330

SALE!
386/33MHZ/128K
$169

ANNIVERSARYSALE

COMING SOON
CONCORD

BASIC SYSTEMS

386SX-25/33 MHz	$265/289
386DX-33/40 MHz w/64K Cache	$345/350
486DX-33/50 MHz w/64K Cache	$615/799
LOCAL BUS 486DX 33 w/64K Cache	$659

BASIC SYSTEMS INCLUDE:

- Motherboard
- CPU
- 1 MB RAM
- 1:1 2HD/2FD Controller
- 1.2 or 1.44MB floppy drive
- Internal Clock/ Calendar
- Math Co-Processor Socket
- Case
- Power Supply
- 101-key keyboard
- Mini Tower

COMPUTER SYSTEM	IDE HARD DRIVE 80MB	120MB	210MB
486DX50/256K	$1437	$1488	$1589
486DX33/128K	1257	1308	1419
486SX25/64K	1087	1158	1279
386DX40/128K	987	1038	1149
386DX33/128K	980	1028	1139

SYSTEM CONFIGURATION

- 4MB RAM
- 1.44 TEAC
- 1.2 TEAC
- Minitower
- 200 w/PS
- 101 Keyboard
- IDE 2FD, 2HD
- SVGA .28 Monitor
- 2S, 1P, 1G

VESA LOCAL BUS

486DX33/256K

$1529

- 4MB RAM
- 130MB Maxtor Hard Drive
- SVGA Monitor .28dp
- VL Bus Video w/1MB
- 1.2 & 1.44 TEAC Floppy Drive
- VL Bus IDE Controller
- 2S, 1P, 1G
- Mini Tower Case
- 101-Key Keyboard

Multimedia Solution for PC........................ $549

- Internal CD-ROM, Sound Blaster Pro, MIDI Kit
- Software Includes: Microsoft Works for Windows - Microsoft Bookshelf Creative Sounds Software Library Holmes Consulting Detective

CREATIVE
CREATIVE LABS, INC.

Video Blaster $379

- Video Capture • Graphics Overlay • Video in a Window

▲ Build your own computer or have us build it for you
▲ Upgrade and repair your own computer at our centers
▲ One year warranty on all parts and labor
▲ We offer the best quality, best service and lowest prices

MOTHERBOARD

486DX/50/256K EISA-USA	$989
486DX2/66/128K	725
486DX/50/128K	615
486DX2/50/128K	578
486DX/33/64K	449
386DX/40/128K	184
VESA LOCAL BUS 486/33/128K	499

- 100% Financing with 90 Day Free Interest
- Accept Visa and Mastercard
- Price Subject to Change without Notice
- Dealer Inquiries Welcome
- Not Responsible for Typographical Errors

MONITOR

SVGA (1024x768) .28	$265
SVGA (1024x768) .39	218
SVGA Viewsonic 4E	310
SVGA Viewsonic 5E	419
SVGA Non-Int .28	310
SVGA Viewsonic 6FS	599
SVGA Viewsonic 7	1010
SVGA Sony 1604 .26	1010
MAG 15F/17F	599/1139
NEC 3FG/4FG	659/759

VIDEOCARD

Trident 1MB	$60
Tseng 4000 1MB	85
Speed Star w/1MB	135
Speed Star 24X	169
Pro Designer IIs	125
Fahrenheit	170
Diamond Stealth	225
VL BUS w/1MB	139
Other Video Cards	CALL

HARD DRIVES

1.2/1.44 Floppy	$58/49
40MB/80MB IDE	139/189
120MB/170MB IDE	245/279
210MB/250MB IDE	344/399
340MB/540MB	590/890

CONTROLLER

IDE w/IO (2S, 1P, 1G)	$22
IDE VL BUS	69
SCSI-2 VL BUS	310
MFM/RLL AT/AT	50/78
DTC SCSI	120
Bustek 32-bit SCSI	325

KEYBOARD

Lite on	$26
Keytronic USA	40
Maxi Switch	35
Omnikey 102/Ultra	68/99

MISCELLANEOUS

Mini Tower Case	$57
Medium Tower	99
Baby AT Case	79
Full Tower	135
Sound Blaster	95
Sound Blaster Pro Basic	159
Sony CD ROM CDU 31A	289
CD Software	CALL
1MB Simm	32
4MB Simm	135
Modem 2400 Baud	39
Fax/Modem 9600/2400	59
Microsoft Bus Mouse	75
Microsoft Serial Mouse	65
Printers	CALL

ComTek Computer
SELF SERVICE CENTERS

PALO ALTO
3527 El Camino Real
Palo Alto, CA 94306
(415) 424-8151

DUBLIN
6602 Dublin Blvd.
Dublin, CA 94568
(510) 803-1530

SAN BRUNO
1778 El Camino Real
San Bruno, CA 94066
(Between Millbrae & San Bruno Ave.)
(415) 225-0153
Open Sunday

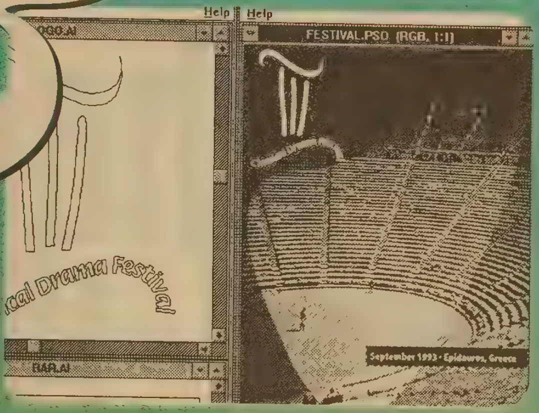
SANTA CLARA
5029 Stevens Creek Blvd.
Santa Clara, CA 95051
(408) 249-4297
Open Sunday

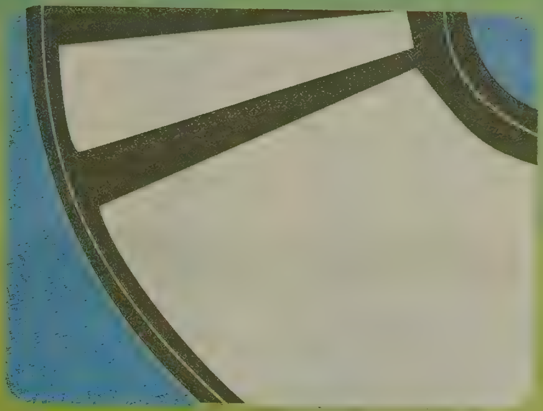
VISA MasterCard

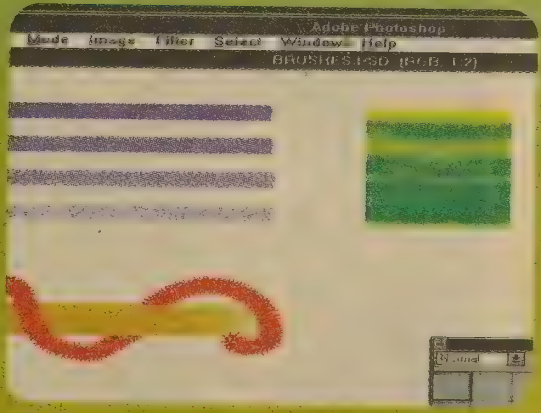
Multi Media & beyond

In this month's section, Jonathan E begins his Multimedia 101 series, exploring the technology's potential and current reality. Also, Tony Reveaux gets an inside look at the new Adobe Photoshop, and Judy Malloy talks about online resources for artists.

Duotone Options


Help
Help
LOGO.AI
FESTIVAL.PSD (RGB, 1:1)
cal Drama Festival
September 1993 · Epidauros, Greece
BAR.AI

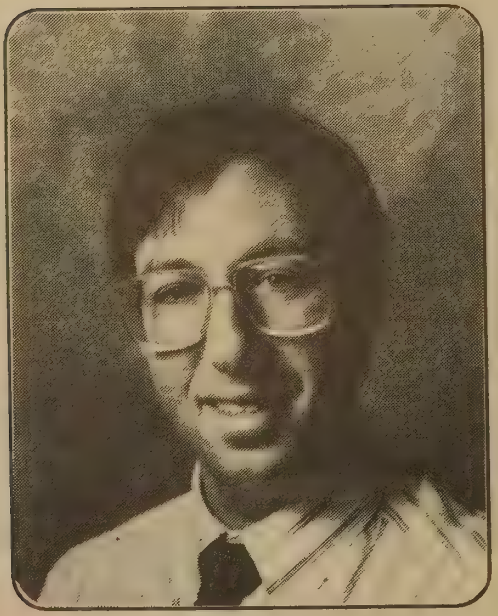



Adobe Photoshop
Mode Image Filter Select Window Help
BRUSHES.PSD (RGB, 1:2)

What's New With Photoshop?

The Inside Story From Adobe's Steve Guttman

BY TONY REVEAUX



(Some years back, when Steve Guttman was in graduate school, he was a frequent contributor to this magazine. We had lots of fun interviewing such luminaries as John Warnock and Scott McNealy.

Then Steve went to work for Adobe and immediately became too busy to write for us. From time to time he would drop tantalizing hints about the world-changing product he was working on.

The product was Photoshop.

Steve still doesn't have time to write for us, so we're delighted to welcome him back—this time as an interview subject.

—Mary Eisenhart)

Adobe Photoshop has earned its place as a cornerstone of photo and image editing on the Macintosh environment, and has set standards for image manipulation modules, or filters, which have become interchangeable tools for many graphics and multimedia production programs. When a flagship progam like Photoshop has undergone a complete rewrite and revision, and also comes out with a Windows version with cross-platform compatibility, these developments will affect many other software and hardware products and their users.

To gain some insight into these issues, we spoke with Steve Guttman, senior product marketing manager at Adobe Systems Inc. Guttman, who was the product manager of the original Photoshop, gives overview of the work accomplished by Product Manager/Macintosh Jeff Parker and Product Manager/Windows Bryan Lamkin, and their tireless teams at Adobe.

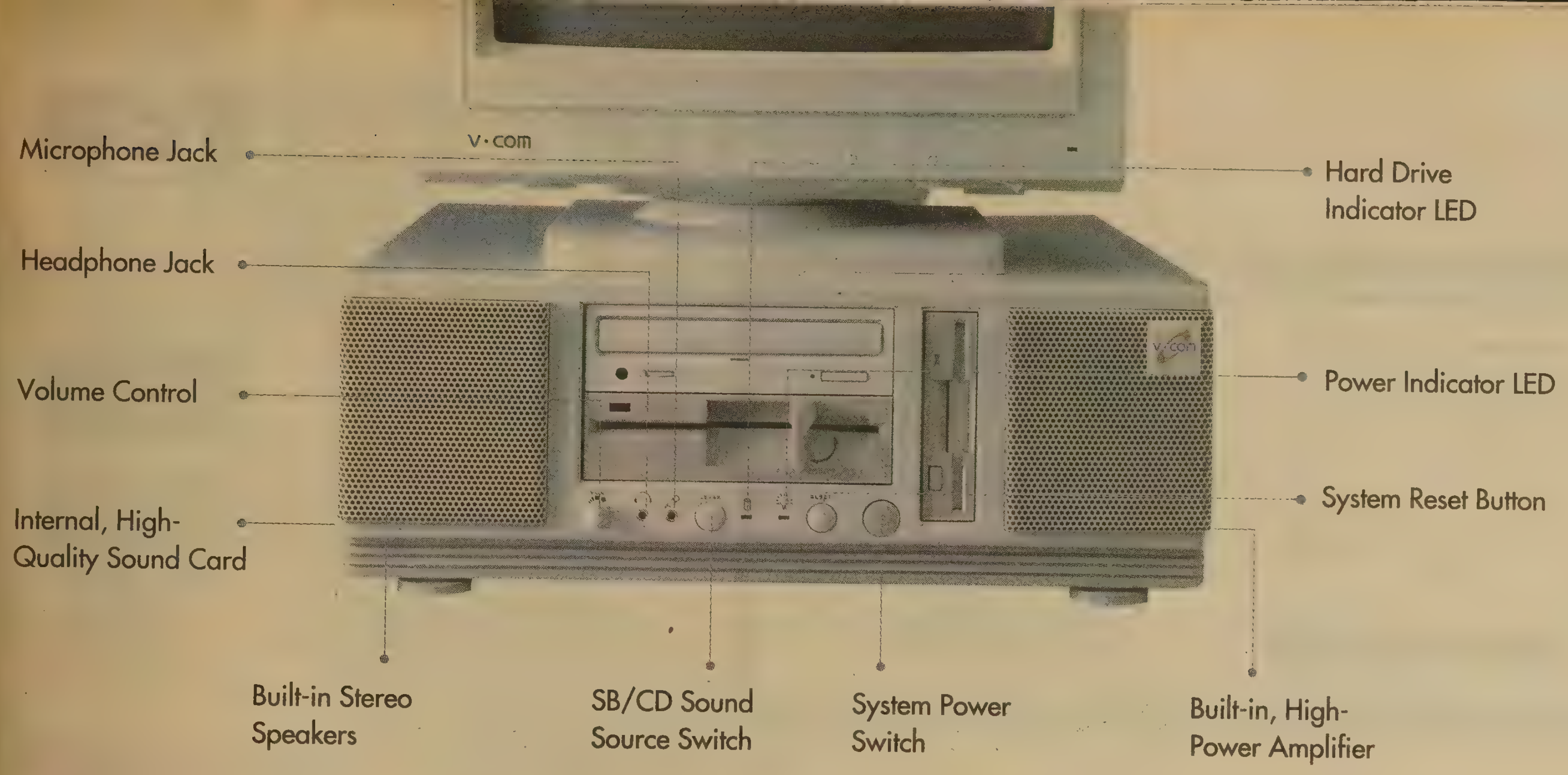
What major changes will we see in the Mac version of Adobe's Photoshop 2.5?

It's a complete rewrite of the program, designed to accomplish several different things.

We wanted to accommodate features that wouldn't really be permissible under the old architecture, such as being able to view multiple channels as transparent overlays on top of the image. We wanted to make the program inherently faster.

When we first shipped v1.0, who would have thought that people would have been manipulating 50 and 100MB images with the program? The architecture wasn't really optimized for that, so

Copyright © 1993 by Tony Reveaux. All rights reserved.



THE V-COM MEDIACUBE MULTIMEDIA SYSTEM

RAISING THE POWER OF MULTIMEDIA TO A NEW LEVEL

Every V-COM MediaCube multimedia system is designed around this revolutionary case design. By consolidating PC, CD-ROM, amplified speakers, audio controls, and audio input/output jacks into a single unit, the MediaCube becomes a truly user-friendly multimedia system. MediaCube eliminates the clutter of external speakers. And you will never need to reach around to the back of the case to adjust the sound level or to plug in a microphone--all controls are conveniently placed in the front of the unit for easy access. A special SB/CD button allows you to listen to music CD's while using your computer. Why retro fit a standard PC to perform multimedia functions when you can have a true multimedia system? A MediaCube.

V-COM MEDIA³

- ♪ 4MB High Speed RAM
- ♪ Built-in Stereo Speakers
- ♪ Built-in High-Power Amplifier
- ♪ High-Quality Sound Card
- ♪ High-Speed SVGA Card w/1MB
  Displays up to 1024x768 and up to 32,768 Colors
- ♪ 14" Color SVGA Monitor
- ♪ 1.44MB Floppy Drive
- ♪ 85MB Hard Disk Drive with Built-in Cache
- ♪ 2 Serial, 1 Parallel, 1 Game Port
- ♪ 101-key Enhanced Keyboard
- ♪ Microsoft DOS 5.0
- ♪ Microsoft Windows 3.1 w/Multimedia Extensions
- ♪ Hi-Resolution Serial Mouse

386SX-40	**$ 999**
386DX-40	**$1049**
486SX-33	**$1149**

Internal CD-ROM Kit- add $225

V-COM MEDIA³ Plus

- ♪ 4MB High Speed RAM
- ♪ Built-in Stereo Speakers
- ♪ Built-in High-Power Amplifier
- ♪ High-Quality Sound Card
- ♪ TrueColor Accelerator SVGA Card
  Displays up to 1280x1024 and up to 16.7 Million Colors
- ♪ 14" Color SVGA Monitor
- ♪ 1.44MB Floppy Drive
- ♪ 1.2MB Floppy Drive
- ♪ 170MB Hard Disk Drive with Built-in Cache
- ♪ 2 Serial, 1 Parallel, 1 Game Port
- ♪ 101-key Enhanced Keyboard
- ♪ Microsoft DOS 5.0
- ♪ Microsoft Windows 3.1 w/Multimedia Extensions
- ♪ Hi-Resolution Serial Mouse

486SX-25	**$1299**
486DX-33	**$1499**
486DX2-50	**$1599**

Internal CD-ROM Kit- add $225

V-COM MEDIA³ Pro

- ♪ VESA Local Bus Motherboard
- ♪ 256K Cache
- ♪ 4MB High Speed RAM
- ♪ Built-in Stereo Speakers
- ♪ Built-in High-Power Amplifier
- ♪ High-Quality Sound Card
- ♪ VESA Local Bus SVGA Accelerator
  Displays up to 1280x1024 and up to 16.7 Million Colors
- ♪ 14" Non-Interlaced Color SVGA Monitor
- ♪ 1.44MB Floppy Drive
- ♪ 1.2MB Floppy Drive
- ♪ 245MB Hard Disk Drive with Built-in Cache
- ♪ 2 Serial, 1 Parallel, 1 Game Port
- ♪ 142-key Programmable Keyboard
- ♪ Microsoft DOS 5.0
- ♪ Microsoft Windows 3.1
  w/Multimedia Extensions
- ♪ Hi-Resolution Serial Mouse

intel inside

486DX-33	**$1799**
486DX-50	**$1949**
486DX2-66	**$2049**

Internal CD-ROM Kit- add $225

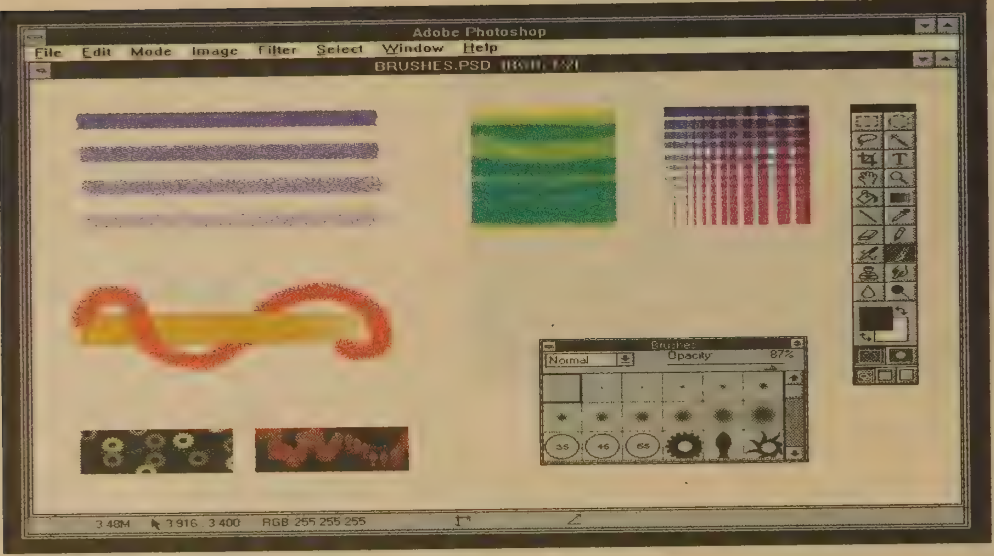
v·com

1-800-875-8266

V-COM ENTERPRISES, INC.
1855 BUSINESS CENTER DRIVE, DUARTE, CALIFORNIA 91010
TEL: (818) 357-7788 • FAX: (818) 301-9005
日本語専用ホットライン TEL: (818) 357-6018

- One year product warranty
- Lifetime toll-free technical support
- 30 day money back guarantee
- APO/FPO orders accepted
- Corporate leasing available

All brand names are trademarks of their respective companies. Prices and specifications may be subject to change without notice. Please call to confirm price and specifications. All returns require RMA numbers and must be shipped in original condition prepaid and insured. Money back guarantee and part replacement apply only to V-COM Brand products. No refunds given for software or printers. Refunds (excluding shipping charges) given for merchandise returned within 30 days with no restocking charge.



we made some changes in the ways that virtual memory and the screen display are handled, which should make it quite a bit faster.

On one hand, it must be very flattering when hardware manufacturers build application-specific Photoshop accelerators, such as SuperMac's ThunderStorm and RasterOp's PhotoPro cards. But aren't they also saying to you that the software is begging for hardware help for things that it should really be able to do itself?

That's another reason we did the rewrite. Another was to have a cross-platform code base, and you can only really get that by design.

One of the things accomplished by this rewrite is to make the program inherently acceleratable. Essentially, we isolated every single routine that did something to pixels, and we put them in a special place in the code and wrote a special interface to those routines. We're working with companies like SuperMac, RasterOps, Radius, DayStar, and others to port these routines to their accelerator cards.

Currently, a card like the ThunderStorm has created additional filters which you access through the filter menu. But once they port these new routines to their cards they will be able to accelerate all the built-in Photoshop functions. They won't just be accelerating filters—ultimately it will be virtually everything.

What are some of the challenges you faced in making a Windows version comparable to the Mac original?

As I understand it, Windows is just a much uglier kind of environment to deal with than the Macintosh, especially in the graphics area.

There are a number of things you can point to—the memory model that Windows uses is not a very good one. For example, whenever you exit a program in the Macintosh, it immediately frees up any memory that is requested by your program. So even if your program doesn't do a good job of disposing of memory as it goes along, the Mac kind of cleans up for you. Windows doesn't do that. Apple just provides so many additional facilities for developers, much more so than Microsoft does.

For example, there still isn't a Windows analog to 32-bit QuickDraw on the Macintosh—something that will render images from 1-bit to 24-bit accurately at a bit-depth of whatever monitor and video card you're using for display—even though Windows is three years old, I guess, by now.

There are all kinds of issues like that. I think in general the Mac is a more robust, more fully featured program environment. I do think that the programming tools under Windows seem to be pretty good. There are more options under Windows, and the debuggers seem to be pretty good, and a lot of additional utilities are available.

Which features were the most difficult to include in the Windows package?

It wasn't really a matter of which features were hard; it was getting the architecture right, such that features were easy to port over to the Windows version.

We have sort of a cross-platform core code base now which ports real easily. The interface code for each platform is done independently. We've been pretty smart about drawing the line between what's done in a Windows-specific way and what's done in a cross-platform sort of way. That's the real key to a successful cross-platform strategy.

So in a shop where Photoshop is being used on both platforms, workers can exchange their files easily?

Yes, absolutely. That was really the goal, because we know that corporations in particular are multiplatform. Pre-press shops, for example, are used to getting files from both Macs and PCs. Although they have been predominantly Mac in the past few years, the PC is really becoming more popular, such as for output graphics.

Which existing photo-retouching programs for the PC will be the main competition for Windows Photoshop?

Certainly Aldus's PhotoStyler and Micrografx's PicturePublisher are the main programs that people are buying right now. You look at those programs, and in general, if you're working with large images, they are quite a bit slower than Mac Photoshop. So Windows kind of got a bad rap for image processing from the word go. But in fact the Windows version of Photoshop is as fast or faster than the Mac version, when high-end Intel processors are being used. It's pretty cool!

What about color management? Does Photoshop 2.5 for the Mac leverage off of Apple's ColorSync system extension?

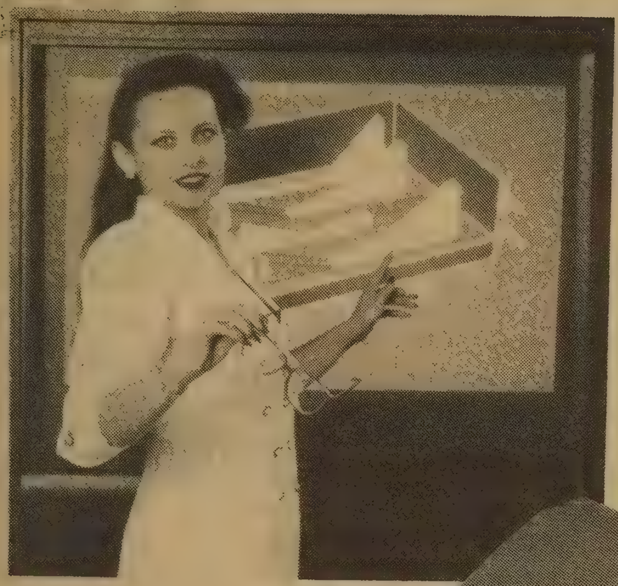
Yes, it supports ColorSync. Photoshop itself sort of has its own color management system with RGB and CMYK modes, and printing preferences that you calibrate to for the monitors and color output devices. The way we work with ColorSync is to pull color information out of ColorSync that allows that information to work within the Photoshop management models. I think it is implemented fairly elegantly.

How far is Adobe going to fulfill the goal of a complete graphics creation environment in Photoshop ?

You still can't do things like add PostScript text; it's still rasterized, as it was in the earlier version.

However, we have a much more robust implementation of the pen tool, which can be used for making very precise selections. It used to be implemented in a very modal sort of way; now it's completely nonmodal. You can do things like upstroke paths with many of the painting tools. You can hide paths and show them very easily. Once you have rendered into the bit-map environment, of course, it's still rendered in there.

We're looking, in the future, to have capa-



For Exciting Presentations . . .

...Let Your Computer Broadcast on TV with AVerKey!

AVer

Mention this ad in MicroTimes and receive a 15% discount off the List Price!.*
* Limited time offer to end users only.

Affordable MultiMedia for Everyone!

In the past, VGA-to-Video conversion has been a difficult and expensive process.

Now, for a mere $349, AVerKey can *EASILY* turn your computer into a powerful presentation tool. This is the ideal solution for cost-conscious executives and computer enthusiasts that would like to get the maximum experience from their existing computer system.

With AVerKey, you get high quality, flicker-free video output from any computer application, including Windows. Connect AVerKey to your PC system and enjoy simultaneous viewing of your computer screen and TV.

A Dynamic Presentation Tool

AVerKey is a dynamic tool for the creation of business presentations, training tapes, software demo tapes, animation and other video presentations. It provides instructors in a classroom environment, the ability to project Windows or any graphics applications on inexpensive projection equipment.

Portability

Compact, durable and lightweight, AVerKey is a rugged companion for field applications. Laptop and Notebook connectivity is a cinch for on-the-road presentations.

A Snap to Install

AVerKey works with any VGA card running 640 x 480 resolution (or lower) in any VGA Color mode. To install, simply plug in AVerKey, connect your VGA monitor and VCR or television, and you're ready to go!

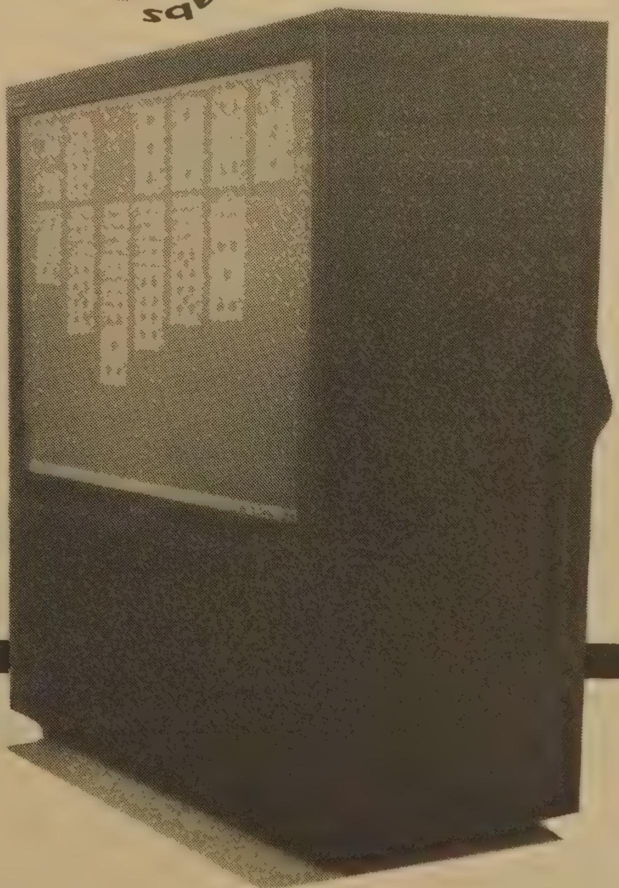
If you are planning to buy any VGA-to-Video presentation products, visit our showroom and experience True Quality at an Unreal Price!

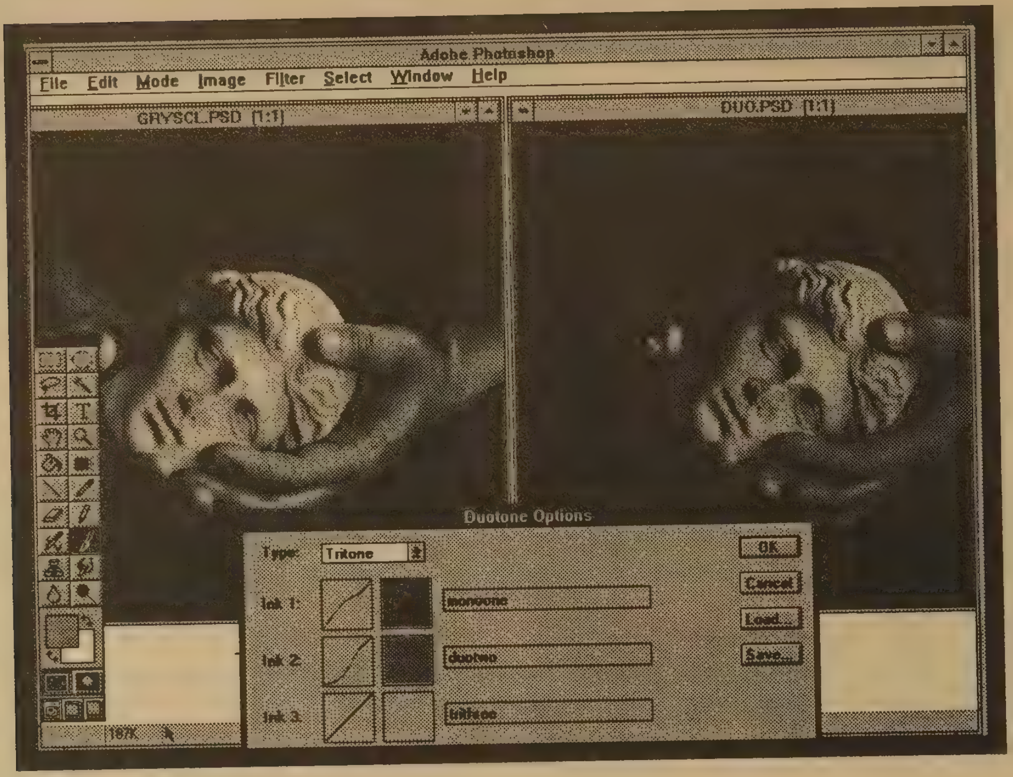
1-800-888-5527

Digital Media Labs

47913 Fremont Blvd.
Fremont, CA 94538
TEL: (510) 438-9088
FAX: (510) 438-9048

Dealers Wanted!





bilities such as adding PostScript more seamlessly, and to make it easier to manipulate bit-map images.

Can we look forward to being able to do some PostScript drawing in Photoshop, as with the basic levels of Adobe Illustrator?

I wouldn't like to say or foreshadow any futures of the software, because we haven't decided those kind of things, but that's certainly a request, and we're looking carefully at things such as that.

What were some of the major improvements Photoshop users asked for?

One of the things that we added, sort of in acquiescence to the photographers who are increasingly getting into electronic image manipulation, is a dodge and burn tool. It simulates the darkroom technique of selectively lightening and darkening portions of an image.

Also, as I've mentioned, being able to view alpha channels as transparent overlays on top of an image. So you can do things like actually paint a mask. You can use any number of channels, up to a total of sixteen, memory allowing.

There's hundreds of small improvements, things that make it easier to work with the program. Another one is an adjustment command that we call Variations, which gives you a visual thumbnail of the selected areas that you can modify; arranged around it are thumbnails of the different versions of the image that can be selected. The variations in tone are arranged like hues around a hue wheel, and you have a column which is variations in lightness. It makes sense for visual editing.

Are there changes and additions in the Photoshop Filters?

We've added a few filters of our own. There's color halftone and extrude, which are both sort of interesting stylizations, and of course you've seen Kai's Power Tools, which are very cool.

How much speed increase will the average user discover with Photoshop 2.5 over the earlier version?

It's very much feature-dependent and implementation-dependent; the filters aren't especially faster than 2.0, but the painting itself is about twice as fast for an in-memory image and the screen redraw is maybe 1 1/2 times as fast.

The virtual memory scheme now uses tiles instead of bands. The band is basically the width of the screen times some fixed height. If you were working on a high-resolution image, and you were zoomed in, you had to bring into memory many bands, much more of the image than may have been visible. Now you only need to bring in the little blocks that actually cover the area you're working in, meaning that it will redraw faster.

What are some of the Photoshop 2.5 enhancements that Mac-based multimedia producers can look forward to?

One of the things that we have done is to build some synergies with Adobe Premiere. For example, v2.0 of Premiere supports what we call film strip files, so that you can save a QuickTime movie as a bunch of frames and open it up in Photoshop and do rotoscoping; we've added some features to Photoshop 2.5 that will make that a little bit easier. You can make a selection, and then, with the arrow keys, nudge it down a frame at a time, and that makes rotoscoping easier and more seamless. We make it easier to save a palette of colors and load it into the color palette, so if you're working in an 8-bit mode, you can save the color table and actually load that into a palette.

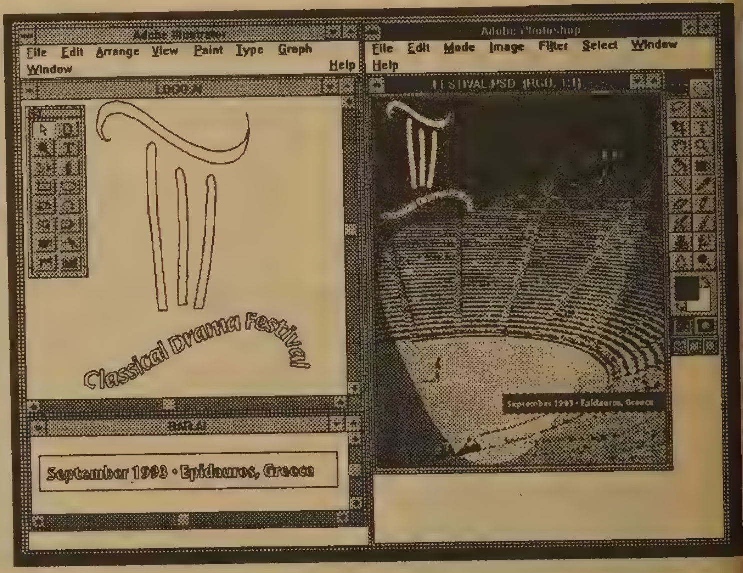
That can be useful in MacroMind Director.

Right, exactly.

What will the list price be for Photoshop 2.5?

It will be the same as for 2.0, $895, and we have two upgrades. One is the regular upgrade which is new manuals, completely rewritten tutorials, new diskettes, etc.; that's $129.

Then we have what we call the CD-ROM Upgrade for $199. That has all the other stuff, plus it has a multimedia front end that gives you access to the complete library of tech notes from our tech support department on Photoshop. We have fifteen QuickTime MooVs of new features and tips and techniques on Photoshop; we have over fifty pieces of high-resolution stock photography which users have almost unlimited license to use and experiment with, and five of Kai's filters. We have a digital photography show that we helped sponsor that took place in San Francisco last summer; it's about 150 images of totally inspirational work that was created by about twenty artists around the world using Photoshop.


Adobe Illustrator
File Edit Arrange View Paint Type Graph Window Help
LOGO.AI
Classical Drama Festival
BAR.AI
September 1993 • Epidauros, Greece
Adobe Photoshop
File Edit Mode Image Filter Select Window Help
FESTIVAL.PSD (RGB, 1:1)
September 1993 • Epidauros, Greece

Have you seen more use of Photoshop installed with CD-ROM?

Yeah, I think its finally becoming the year of the CD-ROM! I think they are really starting to proliferate. ■

RESOURCES:

Adobe Photoshop 2.5
Adobe Systems Inc.
1585 Charleston Rd.
P.O. Box 7900
Mountain View, CA
94039-7900
(415)961-4400

GOLDEN VALLEY SYSTEMS

Best Prices • Best Quality • Best Service • Business Leasing Available

MONTHLY SPECIALS

•MAXTOR 200 MB SCSI Hard Disk Drive	$308
•200 MB SCSI Hard Disk Drive	$349

LOCAL BUS MOTHERBOARD + VIDEO CARD

486DX-50 MHz/64K w/CPU	$849*
486DX-33 MHz/64K w/CPU	$579*

add $40 for 256K Cache

VESA LOCAL BUS

486DX2-66	$1649
486DX-50	$1559
486DX2-50	$1499
486DX-33	$1389

- Intel 80486DX CPU
- 128K Cache Memory
- AMI BIOS
- 4 MB RAM 70ns
- VESA IDE Controller
- 2 Serial/1 Parallel/1 Game
- 1.2 MB & 1.44 MB FDD
- 120 MB IDE Hard Drive
- 101 Enhanced Keyboard
- 14" 1024x768 .28dp SVGA
- 1 MB VESA SVGA 1280x1024 16M Colors w/Accelerator
- Mini-Tower or Desktop Case
- 200W Power Supply

OPTIONS

- Add $30 for 256K Cache
- Add $40 for Non-Interlaced Monitor
- Add $90 for 200 MB Hard Drive

SUPER SALE

486DX2-66	$1499
486DX-50	$1399
486DX2-50	$1359
486DX-33	$1259

- Intel 80486DX CPU
- 128K Cache Memory
- AMI BIOS
- 4 MB RAM 70ns
- IDE Controller
- 2 Serial/1 Parallel/1 Game
- 1.2 MB and 1.44 MB FDD
- 120 MB IDE Hard Drive
- 101 Enhanced Keyboard
- 14" 1024x768 .28dp SVGA
- 512K SVGA Card
- Mini-Tower or Desktop Case
- 200W Power Supply

OPTIONS

- Add $30 for 256K Cache
- Add $40 for Non-Interlaced Monitor
- Add $20 for 1 MB SVGA Card
- Add $90 for 200 MB Hard Drive

SUPER SALE

486SX-20/8K	$989
386DX-40/128K	$969
386SX-33	$899
386SX-25	$879

- AMI BIOS
- 4 MB RAM 70ns
- IDE Controller
- 2 Serial/1 Parallel/1 Game
- 1.2 MB and 1.44 MB FDD
- 80 MB IDE Hard Drive
- 101 Enhanced Keyboard
- 14" 1024x768 .28dp SVGA
- 512K SVGA Card
- Mini-Tower or Desktop Case
- 200W Power Supply

OPTIONS

- Add $40 for Non-Interlaced Monitor
- Add $20 for 1 MB SVGA Card
- Add $40 for 120 MB Hard Drive

NOTEBOOK COMPUTERS

486DX-33/4 MB RAM/120 MB HDD	$2180
486DX-33/4 MB RAM/80 MB HDD	$2080
486SX-25/4 MB RAM/80 MB HDD	$1745
386SX-25/4 MB/80 MB HDD	$1399
386SX-25/2 MB RAM/60 MB HDD	$1199

FEATURES

- 1.44 MB Floppy Drive
- VGA 640x480 Resolution
- DOS 5.0
- Serial & Parallel Port
- Please Call For Details

*Due To Market Volatility, Please Call For Updated Prices

DRIVES

40 MB IDE Hard Drive	$135
60 MB IDE Hard Drive	165
80 MB IDE Hard Drive	192
100 MB IDE Hard Drive	215
120 MB IDE Hard Drive	235
170 MB IDE Hard Drive	255
200 MB IDE Hard Drive	329
250 MB IDE Hard Drive	365
300 MB IDE Hard Drive	499
400 MB IDE Hard Drive	855
500 MB IDE Hard Drive	885

HARD FLOPPY DRIVE ADAPTERS

IDE 2FD/2 HD	$13
IDE 2FD/2 HD w/ 2S/1P/1G	24
Ultrastor ESDI w/32K Cache (ISA)	145
Adaptec ESDI 1542KB w/kit (ISA)	274
Bustek SCSI/EISA	389

PRINTERS

Panasonic KX-P1180	$154
Panasonic KX-P1123	198
Panasonic KX-P1124i	284
Panasonic KX-P1624	358
Cable for Printer	3

VIDEO CARDS AND MONITORS

Monographic Card w/Print Port (MGP)	$11
VGA 256K (800x600, 16 bit)	32
VGA 512K (1024x768,16 bit)	42
Trident 1 MB (1024x7680256)	63
Diamond Stealth	219
Diamond Speed Star w/Hi-Color	139
Orchid IIs/Farenheit 1280 w/1 MB	225
Orchid ProDesigner IIs w/Hi-Color	143
Nanao 9080U (16", 1024x768, 0.28)	864
Nanao 9080i (16", 1280x1024, 0.28)	1028
NEC 3FGX (15", 1024x768, 0.28)	645
NEC 4FG (15", 1024x768, 0.28)	798
NEC 4DS (16" 1024x768, 0.28)	978
NEC 5FG (20", 1280x1024, 0.31)	1338
Sony CPD 1304 (14", 1024x768, 0.25)	579
Standard VGA (640x480) 0.51	189
Super VGA (1024x768) .39	229
Super VGA (1024x768) 0.28	258
Super VGA (1024x768,0.28) Non-Int.	298
14" Mono w/MGP Card	108

MOTHERBOARD + CPU

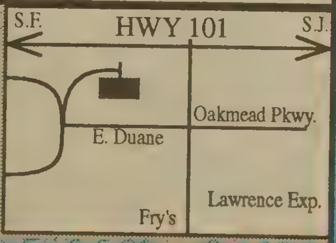
486DX-50 MHz/64K EISA	$939*
486DX-33 MHz/64K EISA	663*
486DX-50 MHz/64K ISA	629
486DX-33 MHz/64K ISA	435
486SX-20 MHz	189
386DX-40 MHz/64K.	169
386SX-25 MHz	95

MISCELLANEOUS

AT I/O (2S/1P/1G)	$11
Internal Modem 2400 Baud	39
FaxModem (9600 fax 2400 modem)	63
3-Button Mouse	12
Logitech Mouseman Serial (400dpi)	65
Logitech Mouseman Bus (400dpi)	72
Summit/Colorado Tape Back-Up	189
Baby AT/Mini Tower Case w/200W PS	59
Medium Tower Case w/200W PS.	95
Full Tower Case w/230W PS.	115
Car/DC-AC Inverter	85

1030 E. DUANE AVE., SUITE J
SUNNYVALE, CA 94086

(408) 738-4921
Fax: (408) 738-4924

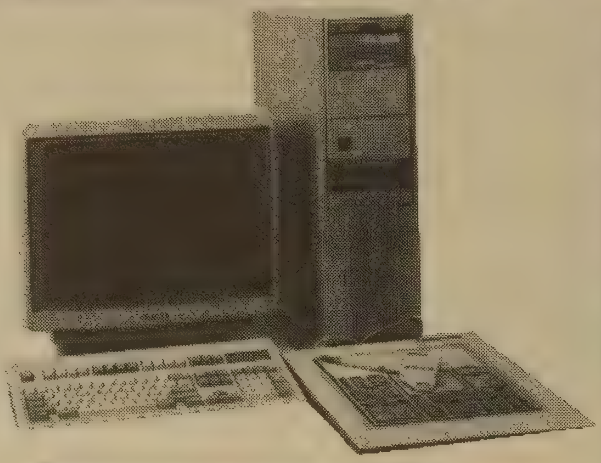


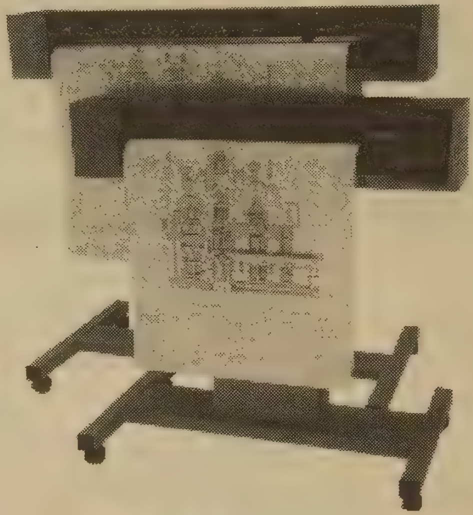
Hours: Mon-Fri 9-6:30 Sat 10-4

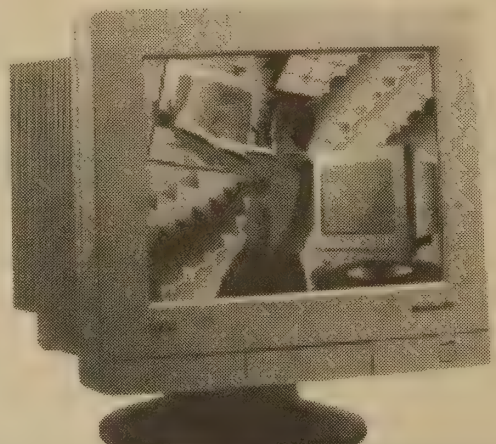
TERMS & CONDITIONS

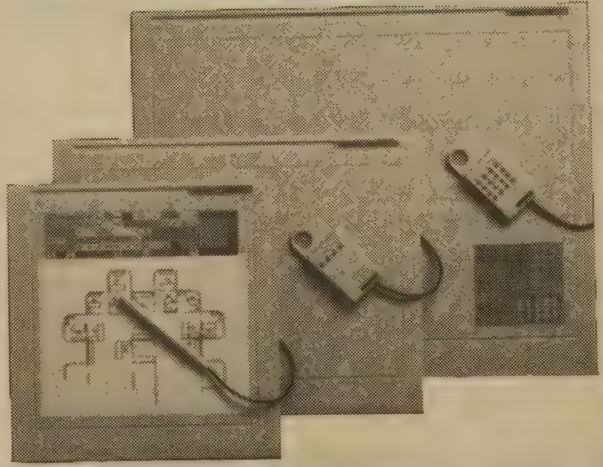
1. 1 year parts & labor warranty
2. Prices & availability subject to change w/o notice
3. Shipping, insurance and COD charges are additional & are non-refundable
4. Return shipping must be insured and bearing a RMA # on the shipping label
5. Defective items replaced or repaired at our discretion
6. Not responsible for typographic errors
7. All returns are subject to 15% restocking fees and cover only computers excludes peripherals. Norefunds after 30 days
8. Government & Corporate Purchase orders are welcome

SYSTEMS









CAD Workstation

- Intel 80486DX2/66MHz CPU. 8MB memory, 256KB Cache memory.
- TEAC 1.2MB & 1.44MB FDD, 210MB IDE Hard Disk Drive.
- 2S / 1P ports, 101 Keyboard, Calcomp 12X12 digitizer, DOS 5.0.
- Full size vertical case, 300W P.S, Heat-Sink, Dual Fan.
- #9GXI TI 34020 graphics card (Level 23).
  - 1280 X 1024 resolution with 60 or 72 Hz refresh rate.

$3,295

Interactive Multimedia

- Intel 80486DX/33MHz CPU. 8MB memory, 256KB Cache memory
- TEAC 1.2MB & 1.44MB FDD, 210MB IDE Hard Disk Drive.
- 2S / 1P ports, Keytronics 101 Keyboard.
- Diamond 24X SVGA
- Toshiba CD ROM(200ms, 380KB/s), Media Vision Proaudio Spectrum16
- Creative Lab SPIGOT Continuous frame Capture board,Video for Windows
- Multimedia Toolbook, MediaBlitz, Asymetrix Make your point
- Mid size vertical case, 250W Power Supply, Mouse.

$3,195

Drawing Manager

- Intel 80486DX/33MHz CPU. 8MB memory, 256KB Cache memory
- TEAC 1.2MB & 1.44MB FDD, 200MB IDE HDD, Mouse
- 2S / 1P ports, 101 Keyboard, Desktop case, DOS 5.0, Windows 3.1
- 1280X1024 Grpahics card (Tracer 1280)
- Raster background & editing in AutoCAD
- Large size scanner (up to E size) and high resolution (up to 600 dpi)
- Large size digitizer (up to 36X44)

$Call

True Color System

- Intel 80486DX2/66MHz CPU. 8MB memory, 256KB Cache memory.
- TEAC 1.2MB & 1.44MB FDD, 200MB IDE HDD, Mouse
- 2S / 1P ports, 101 Keyboard, Vertical case, Windows 3.1, DOS 5.0
- ScanMaker II up to 1200 dpi, 24-bit color flatbed scanner.
- #9GXI TC(L29) TI 34020/40MHz graphics processor based card.
  - 1280X1024 resolution 64K, 1024X768 24-bit color

$4,395

Options for Above Systems

- 14-37 " monitors, Pen Plotters, Electrostatic Plotters, Inkjet Plotter.
- 24 Bit graphics card, SONY Video Deck, DAT, Optical Drive.
- Sound board, Dye Sublimation Color Printer, Image Capture Board
- 24 Bit Color Scanner, A-E size Digitizer / Scanner, Film Recorder.

Please, Call for other Products

Hercules

VIDEO SEVEN

MICROTEK
Better Images Through Innovation.

IDEK
iiyama

CAD / GRAPHICS

#9 GXi TC (L29)

1280X1024, Real Color
- TI34020/40MHz graphics card
- 1024X768, 16.7 mil color
- Built-in VGA or Pass through
- 2048X2048 virtual resolution
- Special 5 years warranty $1,495

TRUEVISION

Targa+ / ATVista

The Best Multimedia.
- TARGA+ 16 / 32 / 64
- ATVista 1M / 2M / 4M
- Bravado
- TIPS
- Truevision 1024 / 32 $Call

matrox

MG3D / MG3D Ultra

MG 3D
- 1024 X 768, 4096 Colors. ISA
- 3D Dynaview for AutoCAD

MG 3D Ultra
- 1280 X 1024, 16 million Col. EISA
- 3D Dynaview for AutoCAD $Call

MICROTEK
Better Images Through Innovation.

ScanMaker

ScanMaker II
- Flatbed 24 bit color scanner
- 1200 dpi resolution $895

ScanMaker 1850
- 35mm Slide 24-bit film scanner
- 1850 x1850 dpi resolution $1,495

XLI CORPORATION

2400dpi printing

Highest Quality Output
- For HP Laser II,III, Canon
- 256 gray level printing
- 35 PostScript-matched fonts
- 2400dpi graphics, 1200 dpi text
- Windows, Dos driver $1,895

HOUSTON INSTRUMENT.
A Summagraphics Company

Ink Jet Plotter (V50)

20X faster than Plotter
- 360dpi A-C size, Inkjet plotter
- Up to 20 times faster than plotter
- Emulates HPGL/2, HPGL, XL24
- Single or rollfeed (Option)

$1,595

Cardinal™

SNAP Plus

NTSC ↔ VGA
- Overlay NTSC and VGA graphics
- 640x480, 24-bit. Capture in real time
- 800x600, 64K. col. display
- NTSC, PAL input / output.
- Windows, ADI drivers $895

Ikegami®

20" Color Monitors

CT 20A
- SONY MultimodeTrinitron Tube
- Up to 1600X1280 resolution.

$2,095

CN 20A
- 1280 X 1024 Non-interlaced
- OCLI Shadowmask $1,495

MONITORS

37" Mitsubishi XC3725	$Call
33" Mitsubishi XC3315, 3715	$Call
21" NEC 6FG	$2,495
21" Nanao F750i	$2,195
21" Hitachi Accuview	$2,495
21" IDEK 5221	$2,095
20" Ikegami CT20A(Trinitron)	$2,095
20" Ikegami CN20A	$1,495
20" Nanao T660i	$2,495
20" Viewsonic 8	$1,695
20" NEC 5D	$1,595
20" SONY 1936	$2,395
20" Mitsubishi 7955	$1,995
20" Hitachi CM2085	$1,395
20" Sampo AlphaScan	$1,145
17" Seiko 1760	$1,095
17" NEC 5FG	$1,495
17" Nanao T560i	$1,795
17" Nanao F550i	$1,095
14" Sampo Alphascan	$395

GRAPHICS CARD

RASTEREX Tracer 1280	$2,695
SPEA 1280	$1,695
#9GXI TC L29	$1,495
#9GXI L23 / 25	$1,095 / 1,395
#9GXE L11 / 12	$595 / 695
Artist XJS 12-16	$2,195
Artist XJS Lite	$1,495
Artist Winsprint 100+	$445
Artist Winsprint 150+	$545
Hercules GS Gold 16	$395
Hercules Graphite	$345
Metheus 1104+16	$995
Metheus 1104+256	$1,095
Matrox 1024	$Call
Matrox Impression AT	$Call
Matrox MG 3D Ultra	$Call
Vector 1280(for Fix freq.)	$595
Stealth 24X V-Local Bus	$195
ATI Graphics Ultra Pro 2MB	$595
ATI Graphics Ultra + 2MB	$495

PLOTTERS

Calcomp 2036(A-E)	$4,095
Calcomp 2024(A-D)	$3,195
HP Design Jet (A-E)600dpi	$7,095
HP DesignJet (A-D)600dpi	$5,995
HP 7599B (A-E)	$7,695
HP 7596C (A-E)	$6,695
HP 7595C(A-E)	$5,295
HP 7576A(A-E)	$4,195
HP 7575A(A-D)	$3,195
HP 7570A(C-D)	$2,695
HP 7475A(A-B)	$1,495
H.I. DMP162(A-E)	$3,695
H.I. DMP161(A-D)	$2,895
H.I. JetPro(A-C) V100	$1,895
Enter SP600(A-B)	$695
Mutoh XP-501(A-D)	$4,195
Roland GRX300(A-D)	$3,445
JDL 850XP-1M(A-C)	$2,895
AMT Accel244(A-C)	$895
PacificData InkJet(A-C)	$1,195

DIGITIZERS

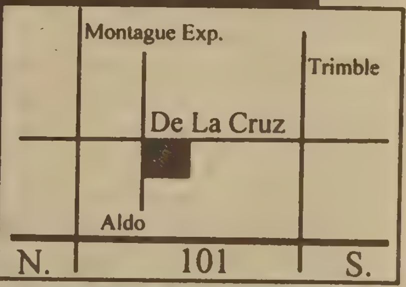
Calcomp 44X60	$1,895
Calcomp 36X48	$1,695
Calcomp 24X36	$1,495
Calcomp 18X24	$1,295
Calcomp 12X18	$645
Calcomp 12X12(P.Sen)	$495
Calcomp 12X12	$289
Calcomp 6X9(P.Sen)	$450
Summa S. MG2 42X60	$3,595
Summa S. MG2 36X48	$2,995
Summa S. MG2 24X36	$2,595
Summa S. MG2 17X24	$2,195
Summa S. III 12X18	$595
Summa S. III 12X12	$315
Kurta XLC 24X36	$1,295
Kurta XLC 18X24	$1,095
Kurta XLP 12X18	$535
Kurta XLP 12X12	$285
Kurta Is / One 12X12	$345
Wacom 12X12	$695

JEMINI
ELECTRONICS
The house of CAD & Graphics Equipment

3448 De La Cruz Blvd., Santa Clara, CA 95054
Phone (408)727-9986 Fax (408)727-7687

- * Price subject to change without notice
- * Not responsible for typographical errors
- * All trademarks belongs to their respective companies

Mon - Fri : 9 - 7 Sat : 10 - 4



Free Technical Support, New Low Price !

NANAO® CalComp A Lockheed Company RASTEREX HEWLETT PACKARD

MultiMedia & beyond

Multimedia 101

Defining The M-Word—First In A Series

BY JONATHAN E.

When it comes to defining multimedia, I always think of the story of the elephant and the blind men. When considering the current state of multimedia and the promises made about its future, the story of the emperor's new clothes comes to mind.

This is not because of any deliberately criminal frauds committed by the tailors, but because, with such unbridled optimism about the future rampant in the forums of public opinion, there are few witnesses pointing out the difficulties of the present situation and the differences between now and the proposed future.

This column will attempt, over time, to describe the whole elephant and also to discuss the cut and fit of those clothes the emperor actually wears, and those he might possibly be wearing.

What is clearly fact is there's lively interest in the M-word, among the public and in the mass media. The word is bandied about by the metropolitan dailies; the glossy computer monthlies have special issues; even entertainment magazines and the newsweeklies have noticed that something is going on.

Over one thousand people (about one hundred were expected) recently attended the San Francisco State University Extended Education program's information session to learn about the courses offered in multimedia studies. The crowd was a mixed bunch of hippies and suits, with a few scattered cyberpunks, but mostly regular working folks. Multimedia has evoked evangelistic enthusiasm among both its practitioners and curious onlookers, so revolutionary fervor was high.

THE APPEAL OF MULTIMEDIA

This interest is natural enough. Working out the kinks and tangles of a new technology, especially one with as many levels of content and technical requirements as multimedia, is a challenging and attractive task. For corporations, new markets offer the possibility of huge profits, particularly for early entrants. We've recently seen vast fortunes made from mining the digital vein. The new frontiers formed by the information age, the globalization of popular culture and economic activities, and the pressures on natural resources caused by the population explosion, make ideal conditions for gold-rush behavior.

Historically, we're at an interesting juncture. The end of a millenium coincides with the dawning of a new digital age. Interest in the archaic, alchemical processes of making the mind's contents physically manifest is reviving. Multimedia appeals to that spirit. It has the relatively mundane possibilities of previous new media such as cassettes, television, or the telegraph. It also holds out the paradigm-changing possibility of being a new means of expression; of being the equivalent of writing, photography, animation, or sound creation; of being able to make the mind manifest in a new, comparatively unfettered way through the unique properties of combining all those means of expression with various digital properties and techniques.

MULTIMEDIA AND JOBS

All those SFSU attendees need to make a living.

The SFSU estimate is that there are forty companies employing three thousand people in multimedia in the Bay Area. Half that number are working in production, i.e., content, not software development. In two or three years, there may be as many as twenty-five thousand jobs globally—most of them here in the Bay Area. The most conservative projections are that the jobs will only double.

Currently most of the content work is in corporate presentations, training, and education. The market for consumer multimedia titles will come later. The questions about how much work there actually is got quite heated, while some of the answers about the size of the market got somewhat defensive: "There are lots of different numbers, but the growth is exponential." The Bay Area should be able to nurture such a newly conceived industry because of its accumulation of a "critical mass of assets" composed of venture capitalists who are used to working with technology companies, a modern infrastructure including fiber-optics links, educational institutions and think tanks, along with plenty of content and creative people with shared values about communicating.

SOME BASIC CONCEPTS

So what is multimedia?

As you might suppose from the elephant-and-blind-men analogy, it means different things to different people. Another way of illustrating it would be with a Venn diagram, where the circles represent such things as interactivity, CD-ROM, cross-referencing, hypertext, sound, and video. Different definitions and interests could overlap the circles differently to allow for their own interpretations.

Not all that long ago, multimedia primarily meant having a lightshow projected while a band played on stage; if it was a big production, maybe there'd be some dancers, or perhaps a live action painting going on at the same time. Live theatrical and musical performance and art installations are still important forms of multimedia, and many of the ideas and techniques used there have counterparts in desktop multimedia. In fact, much of the hardware and software is shared with desktop multimedia. The entry of such equipment into a home consumer market of millions is the obvious economic dream of the hardware side of multimedia.

At its simplest, all desktop multimedia means is that a personal computer is able to engage two of our senses, sight and sound, instead of the single one usually available, sight. The other

*Copyright © 1993
Jonathan E. Jonathan
has worked with desk
multimedia since 1988.
also writes about world
sic and the Archaic Rev
for BAM. His USPS mai
address is c/o SoundSt
54 29th St., Richmond
94804. His email addre
jeve@well.sf.ca.us*

Whether your office has one computer or one hundred....

We keep you working

AUTHORIZED TECHNICAL SERVICES has the experience *and* the expertise to handle your equipment service needs. Whether you're running one small office with one micro computer, or a statewide network of offices with a complex inventory of computers, video display terminals, printers and data communications devices—you simply cannot afford "down time". Call **ATS** today to find out just how easy it is to stay productive

ATS
AUTHORIZED TECHNICAL SERVICES
1-800-451-4057

HERE'S A PARTIAL LIST OF EQUIPMENT WE SERVICE:
MICROCOMPUTERS: Dell, Epson, Advance Logic (ALR), AT&T, Everex, Leading Edge, AST Research, Compaq, IBM. **LOCAL AREA NETWORKS:** 3Com, Novell. **STORAGE DEVICES:** IOmega (Bernoulli). **DOT MATRIX PRINTERS:** Alps, Datasouth Epson, NEC, Panasonic, Citizen, Texas Instruments, C. Itoh, Digital Equipment (DEC), IBM, Okidata, Printek, Toshiba. **PLOTTERS:** Hewlett-Packard, IBM. **THERMAL PRINTERS:** IBM, Texas Instruments, Panasonic. **LINE PRINTERS:** Data Products, Printronix. **LETTER QUALITY PRINTERS:** C. Itoh, Diablo, NEC Spinwriters. **LASER PRINTERS:** Canon, Epson, IBM, AST, TI, Hewlett-Packard. **VIDEO DISPLAY TERMINALS:** Digital Equipment (DEC), Link, Qume, Tab, Televideo, Wyse. **DATA COMMUNICATIONS:** Hayes.

ATS SERVICE CENTERS:
Los Angeles (310) 839-0020
Orange County (714) 937-0332
Oakland (510) 638-4449
Sacramento (916) 923-2944
San Jose (408) 970-9860

> The main current drawback to CD-ROMs is the excess of different and changing standards. It's tough for publishers of multimedia material to know which standard to publish for, and it's tough for consumers to know what hardware to get.

senses are still only available in non-digital form, although some might argue that virtual reality offers a sense of motion. The recent excitement over multimedia has arisen, in some part, because desktop computers are now beginning to have the technical capability to show lifelike video with synchronized sound. But wait! It isn't in the stores quite yet!

That, however, is only the smallest and most technical tip of the iceberg. The real thrills, and perhaps more fundamental utility, of multimedia came several years earlier, and were more concerned with text and basic digital technology: the ability to search for and cross-reference the words you were interested in and an index that took you to *exactly* where those words occurred (i. e., didn't just give you the page numbers but showed you the highlighted words in context); the concept of hypertext, with similar but expanded cross-referencing abilities; and the user-controlled interaction of text with appropriate sounds and images.

A FEW WORDS ABOUT CD-ROM AND HARDWARE

CD-ROM (Compact Disk-Read Only Memory) is about the most frequently encountered term in multimedia. Ironically, however, it is not an intrinsic element—multimedia could theoretically work fine without CD-ROM.

However, linkage of text with sounds and images makes CD-ROM a practical necessity. Text doesn't take up much digital space, but sounds and images do—more than is usually convenient with floppies. A CD-ROM and its optical storage can hold a significant amount of digitized sound or graphics, whether still or moving, and thus provide a relatively convenient system of delivery. However, CD-ROMs are slow, and, judging from experiences with audio CDs, some will develop irritating problems of jumbling data and running poorly on different players.

The main current drawback to CD-ROMs is the excess of different and changing standards from CD-XA through CD-I to CDTV and beyond. It's tough for publishers of multimedia material to know which standard to publish for, and it's tough for consumers to know what hardware to get. While prices have dropped to realistic levels, the march of progress has not slowed, and it's hard to see a substantial consumer market developing while change is so rapid. That tough decision about the CD-ROM player and its driver software is only the beginning. The series of questions about RAM, processor speed, and so on has only one kind of answer: "More—Faster—Bigger." The question about whether your old computer can do the job is answered with an "Unlikely." The choices spread out before the eager consumer after answering the "Can I afford it?" question are indeed tempting and diverse.

Much of the problem here is that huge corporations are attempting to position themselves for long-term dominance of the market rather than solving the short-term questions in a cooperative way. The introduction of new technologies can only proceed at a certain rate, and there will be plenty of competing goodies for everyone's digital dollar. While multimedia has captured the imaginations of many, its capture of the market is not guaranteed—eight-track cartridges and Beta video serve as cautionary examples of technologies that did not satisfy their original

DesktopVideo Solutions

We can provide you with a solution to all of your Desktop Video needs.
Here are a few of the items now available:

Fast Video Machine - A/B-Roll editing system complete with machine control, DVEs, Audio Mixer, Video Switcher & TBCs.

Newtek Video Toaster - Complete all-in-one broadcast quality video production studio. 4 input switcher, DVEs, Character Generator, 24-bit Paint program, 3D Graphics and Animation, dual Frame Buffer, Luminance Keyer and Frame Grabber.

Y/C Plus - Super VHS and Hi8 for the Video Toaster. Gives four S-Video Inputs and 2 S-Video Program outputs. Reduces dot crawl and cross-color NTSC artifacts.

ToasterLink-MAC - Control the Video Toaster from the Macintosh. Transfer files between the Toaster and the Mac effortlessly.

Matrox Studio - A/B-Roll and A/B/C-Roll editing systems with complete machine control, DVEs, 24-bit graphics, and high performance digital audio.

Videomedia OZ - Complete A/B-Roll editing system which incorporates all of the conventional video tape editors needs into an integrated video tool.

AMILINK
Videomedia OZ
MATROX STUDIO
FAST

Special Seminars
Join us every Friday in March for free desktop video seminars.
Held at 10:00 AM.
Call for Space and Topic

HT ELECTRONICS
computer systems
275 N. Mathilda Ave., Sunnyvale, CA 94086
Store Hours: 9:30-6 M-W,F • 9:30-8 Th • 9-5 Sat • Closed Sunday

(408)737-0900
fax (408)245-3109

Multimedia

Large Selection

486
Computer System
- 486DX-33 64k Cache
- Mini Tower Case 200Watt
- 4mb Ram
- 120mb IDE Hard Disk
- 3.5" and 5.25" HD Floppies
- Color 1024 x 768 .28 Video
- Keyboard / 2P 1S/ Game

$1365

486DX2-66 Vesa Local Bus
- ISA Motherboard and CPU
- 256k Cache
- 2 Vesa Local bus slot

$739

Multisync 3FGx By NEC
$629

MULTIMEDIA PC UPGRADE KIT
By Media Vision
CD ROM, Pro Audio Spectrum 16
Comptons Multimedia Encyclopedia
$669

WatchIT! TV
by New Media Graphics
TV in a window. Includes
TV tuner plus image capture
New $299

SupraFAXModem
14,400 bps Send/Receive
Fax/Modem V.32bis V.42bis
External No Software
$279

SupraFAXModem
14,400 bps Send/Receive
Fax/Modem V.32bis V.42bis
Internal with Software
$199

ALTEC LANSING
ACS300 Stereo Speakers
with seperate SubWoofer
$289

Number Nine 9GXE Level 11
Fast 24 bit Color Video
$539

FUSION CD 16
COMPUTER CD SOUND SYSTEM
By Media Vision
CD Drive, Sound Board,
Speakers, Comptons Family
Enclopedia and more.
$499

PRO 16 MULTIMEDIA SYSTEM
CD-ROM With 16 bit Sound BY Media Vision
$949

PRO MOVIE SPECTRUM
By Media Vision
Includes Video For Windows 30 frames/Sec.
$299

ScanMaker II
By Microtek
1200 DPI, 16 Million Color
Full page scanner
$889

Intel SatisFAXtion Modem/400
V.32/V.42 and Smart Line sharing
$399

VIDEO BLASTER
BY CREATIVE LABS
Full motion video in windows
$349

SOUND BLASTER PRO 16BIT
New 16 Bit sound card
$229

SOUND BLASTER MULTIMEDIA STARTER KIT
CD-ROM with Sound Blaster Pro
$445

SOUND BLASTER PRO DELUXE
With CD-ROM Interface
$129

VideoSpigot For Windows
With Video For Windows 30 Frames/sec
24bit Capture, with Asymetrix : Toolbook,
Mediablitz and Make Your Point
$429

THE MIRACLE
Piano teaching system
$319

COVOX
Voice Recognition
1000 Word Vocabulary
$159

Mitsumi CD-ROM
Drive plus Controller
360ms Access Time
New $219

GRAPHICS ULTRA+
By ATI (2mb)
1280 x 1024 256 Colors
1024 x 768 65000 Colors
800 x 600 16 million colors
$339

Pixar Typestry
Turn Truetype and Type 1 into 3D objects
with shadows and Textures. Make 3D Movies.
This program is incredable.
$159

Plus Books and Magazines

SuperScan 20"
HITACHI 20 " Color Monitor
1280 x 1024 Non interlaced
$1349

Microsoft ACCESS
Limited quantity at intro price
$99

10,000
Products instock or available next
day from local warehouses.
We special order every day
Call

Service
We service computers
and Software
In store or On site
Call

Distant Suns	Mars Explorer	Mantis CD-ROM	WinFax Pro	SPACE QUEST 5	BizPlan Builder	MOZART	Sketcher	Virucide	Swimsuit Calendar	Thrustmaster	1ST ACT	Direct Access	Women of Venus	StarTrek Audio
$59 95	$39 95	$49	$69 95	$39	$79 95	CD $35	$99	$39 95	CD $35	$79	$49 95	$69 95	CD $35	$39 95

CD-ROM Software

Microsoft Cinemania	59.95
World Vista	54.95
Multimedia Beethoven	54.95
Space Adventure	69.95
Learn to Speak Spanish	64.95
Enhanced Battle Chess	49.95
Comptons Interactive Encycl	239.00
Future Wars	49.95
Street Atlas USA, Delorme	99.95
Family Doctor	59.95
Grolier Multimedia Encyclo	229.00
Compton Family Encycl.	189.00

CD-ROM

Motherboards

CLONE MOTHERBOARDS W/CPU	
- 386SX -33 Motherboard	110
- 386DX-40 128 C	180
- 486DX-33 64C	450
- 486DX-50 128C ISA + Local Bus	760
- 486DX2/66 256C ISA + Local Bus	749
VIDEO CARDS	
- BOCA SuperX Accelerator	149
- CARDEX 24BIT Local Bus	129
- Tridend 8900CL 24bit, 1280x1024	69
- Mustek Matador 105 Scanner	99

Software

Word for Windows	299.00
Excel for Windows	299.00
Wordperfect for Windows	269.00
Foxpro	339.00
Corel Draw	299.00
Micrographix Designer	359.00
Intellidraw	199.00
SuperStor Pro	74.95
File Runner	59.95
Fractal Painter Windows	259.00
Plus much more	
Lots of Games Too	

Plus Much More

Hardware

Metal CPU Floor Stand	7.00
Dexxa Mouse	19.95
Color Monitor 1024 x 768 .28dot	266.00
Thrustmaster Flight Control	79.00
Thrustmaster Weapons Control	89.00
Labtec Stereo Speakers	19.95
Logitech Scanman Color	599.00
Thumbelina mouse	69.95
MousePen Pro	69.95
Orchid Fahrenheit 1280 24bit/1mb	199.00
Keyboard Desk Drawer	39.95
Plus much more	

Networking

WINDOWS For WORKGROUPS	
- 2 user starter kit	589.00
- 2 user add on startert kit	389.00
- 1 user add on kit	299.00
- 1 user software (req. win.)	69.00
- 1 user with windows	159.00
LANTASTIC	
- Lantastic AE2 Starter Kit	489.00
- Lantastic A2MBS Starter Kit	349 00
- Lantastic Z	85.00
- Lantastic AE-2 10mb Net card	195.00
EAGLE NE2000 16bit Net card.	159 95

Not responsible for Typographical Errors

Prices subject to change without notice

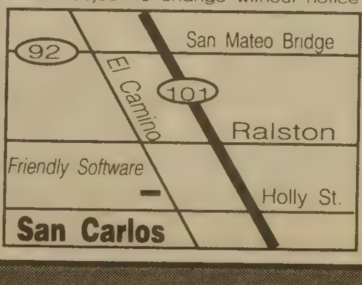
Friendly Software Store

11 years

376 El Camino Real, San Carlos

415-593-8275

Monday thru Friday . 10:00 to 6:30
Saturday .... 10:00 to 5:00
Sunday .... 12:00 to 5:00



commercial potential. Sometimes it just takes a while—I recently read that the fax machine was first invented in 1843!

ALL KINDS OF SOFTWARE

As with all digital technologies, the other part of the equation concerns software. Authoring software is what developers or publishers use to manipulate the various pieces of content—words (text or spoken), visuals (still, moving, animated, photographic, etc.)—into a pleasing relationship, together with all the cross-references, hypertext, and so forth, depending on the specific needs of that content and the production budget. Various programs have their specialized capabilities.

Like page-layout programs, some multimedia programs are able to import the contents of files created using other applications, e.g. a sound or a piece of text. In some cases, there is a standalone playback application that may be licensed so that your creation can run on machines without the whole authoring system. Otherwise, the complete application needs to be on all machines that will run your work.

Now we come to the absolute nub of multimedia: the actual content, the words, pictures, and sounds intended to impart some cumulative meaning that simple books, videos, and songs can't do on their own. Something Madonna couldn't do in her cobbled-together, and definitely extant, version of mass multimedia. The answer to a question at the SFSU info session about the learning curve of authorware was, "The programs can be learned. What we need more than anything else is conceptual power and imagination."

Some perceive the representation of conceptual power and imagination from the past as a key component of multimedia. Accordingly, well-known billionaires like Bill Gates are buying up the intellectual property rights for artwork of all kinds.

The content of currently available multimedia titles is as varied as seems reasonable for such a young field, ranging from expanded coffee table books through a poetry volume, an encyclopedia, and from children's animated books to musical analysis. My observation is that there's definite room for improvement. Reviews I have read of titles I'm familiar with have been either kind or shallow. In-depth reviews of multimedia titles will be an important part of this column.

ADVICE

Don't worry about the hardware races. Let the engineers wear themselves out! In the meantime, acquire a conceptual understanding of what's possible (everything!) by attending to your education.

The SFSU catalog has juicy course descriptions. The prices vary widely, but some seem like a pretty fair deal in this day and town. If you were to spend $75 and join the International Interactive Communications Society, the multimedia professional association, you'd get a 15% discount on class fees. The IICS number is (415)328-7318. There are other benefits to membership. To reach the SFSU Extended Education center, call (415)338-1373 or fax (415)338-7290 to find out how and when you can enroll.

Three private schools also offer various classes in multimedia areas: Center for Electronic Art, (415)956-6500; Computer Arts Institute, (415)564-5242; and Graphic Arts Institute, (415)543-9211. ■

LOCAL BUS - VESA STANDARD PRODUCTS!!!

NETWORKING PRODUCTS:

ETI-LAN001: *32 bit EISA, 10BASE2 and 10BASE5..........$200.00*
ETI-LAN002 Combo: *16 bit, 10BASE2, 10BASET an d AUI..........$469.00 / 6 pack*
ETI-LAN003 Combo: *8 bit, 10BASE2, 10BASET and AUI..........$439.00 / 6 pack*
ETI-LAN004: *16 bit, 10BASE2 and AUI adapter..........$460.00 / 6 pack*
HUB-008: *10BASE-T, 8 port concentrator..........$220.00*
ETI-TRN2: *AUI to 10BASE2 transceiver..........$299.00 / 6 pack*
ETI-TRN5: *AUI to 10BASE-T transceiver..........$299.00 / 6 pack*
ETI-PKLAN01: *10BASE-T pocket Ethernet adapter..........$155.00*

FAX-MODEM :

ETI-FM01E: *external, 9600S/9600R, 2400bps..........$80.00*
ETI-FM01I: *internal, 9600S/9600R, 2400bps..........$70.00*
ETI-FM02E: *external, 9600S/4800R, 2400bps..........$65.00*
ETI-FM02I: *internal, 9600S/4800R, 2400bps..........$55.00*

SYSTEM BOARDS:

Vital 486 VL-EISA:
Local bus, VESA standard, 64KB cache, no CPU..........$380.00
Local WARP-33 486 EISA:
Opti chipset, 64KB cache, no CPU..........$350.00
ETI-MB003/VESA:
386/486 Local bus, VESA standard, 128KB cache, no CPU..........$145.00
ETI-MB004/I4:
486 ISA, with 256KB cache, no CPU..........$140.00
ETI-MB005/I3:
386DX-40 with 128KB cache, with CPU..........$188.00

VGA & IDE ADAPTERS:

ETI-VGA001:
ET4000 chipset, 32-Bit local bus VGA, high color, 1MB DRAM......$160.00
ETI-VGA003:
Cirrus Logic chipset, local bus VESA standard, 1MB DRAM..........$130.00
ETI-VGA003/V:
ET4000 chipset, local bus with VESA standard, 1MB DRAM..........$150.00
ETI-IDE002/V:
Local bus IDE, VESA standard, 2H/2F, 2S/1P..........$90.00
ETI-IDE003:
16 bit IDE, 2H/2F, 2S/1P..........$18.00

RESELLERS & DISTRIBUTORS WANTED!!!

WE OFFER THE BEST PRICES. THE BEST SERVICES AND THE BEST PRODUCTS

ELISA TECHNOLOGY, INC.
43148 CHRISTY STREET, FREMONT, CA 94538 TEL: (510) 651-5817 FAX: (510) 651-4834

MicroTimes Reaches over **1/2 Million Readers** every month.

For Advertising Information Call: 510-934-3700 408-244-4400 213-851-8600 714-939-2809

Walnut Creek CDROM

Full money-back guarantee.

VISA/MC/AMEX/COD

1547 Palos Verdes Mall
Suite 260
Walnut Creek, CA 94596

1-800-786-9907
+1-510-674-0783
+1-510-674-0821 FAX

Simtel MSDOS CDROM $24.95*
640 megabytes, 9000+ files. Programming tools, dos utilities, tech docs, comm, bbs, publishing, ham-radio, education, source code and much more. This disc is dated December 1992.

CICA MS Windows CDROM $24.95*
Thousands of MS Windows programs. Utilities, games, source code, programming tools. This disc is dated March 1993.

Hobbes OS/2 CDROM $24.95*
Source Code CDROM $39.95*
Giga Games CDROM $39.95*
C User's Group CDROM $49.95
CDROM Caddies $4.95

**Shareware requires separate payment to authors if found useful.*

MICROWORLD

1514 University Ave., Berkeley, CA 94703 (510) 845-2000

ITS HERE! MARCH IS OUR **BIG SALE MONTH** *SO COME AND GET IT!*

Ultimate Windows, Ultimate CAD!

486/66 DX2 with 256K cache

16 Megs of RAM
American made Local Bus Motherboard
American Made Local Bus SCSI-2 Card
(4 times faster trhan EISA bus controller)
#9 GXi Lite Ultra-High Speed Video Card
(10-100 faster than S3 Video Cards)
MAG MX17F 17 inch Color Monitor
Fujitsu 525 MB SCSI-2 11 ms Hard Drive
3.5" & %.25" Floppy Drives
2 serial, 1 Parallel and 1 Game Port
101 Keytronics or Maxiswitch Keyboard
Full Tower case with 300 watt power supply
MS Windows 3.1, MSDOS 5, Mouse
1 Year parts 5 Years Labor

$4995

Some Optional Upgrades:
Weitek 4167 Coprocessor: Add $495
#9 GXiTC Level 29 with 4 MB of VRAM & 1MB of Program Memory, & Cache :+$995
Call for other video card options

MICROWORLD is a licensed ORCHID OEM.

Authorized Educational Dealer.

ORCHID

Orchid 486 DX 33/64k or 50/256k

Orchid SuperPro VESA LocalBus Motherboard
Farenheit 1280 D 1meg S3 video Card
8 Megs of RAM/2496 Faxmodem
250 meg 15 ms IDE Hard Drive
3.5" & 5.25" Floppy Drives, .28 NI Monitor
2 serial, 1 Parallel and 1 Game Port
101 Keytronics or Maxiswitch Keyboard
Med Tower case with 230 watt power supply
MS Windows 3.1, MSDOS 5, Mouse

$2200/$2450

$1849 - 4 Meg/120 HD as above

8 more megs of RAM: Add $289

ORCHID pioneered Local Bus and is one of the BEST around, plus ORCHID components have a four year warranty with registered products.

Ultimate VESA 486 DX2

486/66 DX2 with 256K Cache

Dual VESA Local Bus w/ET 4000 & V IDE
8 Megs of RAM / 2496 FaxModem
200 Meg IDE Hard Drive
5.25" & 3.5" Floppy Drive
101 Keytronics or Maxiswitch Keyboard
.28 dot pitch SVGA Monitor
MS Windows 3.1, MSDOS 5, Mouse
Baby AT or Mini or Medium Tower
1 Year parts and 2 Years Labor

$2200

Some Optional Upgrades:

Upgrade to 16 megs of RAM	$289
Upgrade to 340 MB Hard Drive	add $450
Upgrade to 525 MB Hard drive:	add $755
Upgrade to INTER 15" Flat Screen	add $185
Upgrade to 15" Viewsonic or NEC 3FGX	$285
Upgrade to 17" flat screen monitor	$750
Colorado 250 Tape Backup	$250

SOFTWARE CLEARANCE

Thousands of MSDOS and ATARI ST Programs- NEW & Fresh, not OLD or USED up to 50% off!

Fantastic Bargains-One Month Only-Cash, Check, or Credit Card

High Quality 486

80486 33 mz/64k/120HD
2 floppies/ .28 dot pitch SVGA
Windows/Dos/Mouse
4 megs of RAM
101 kb
2 serial/1 parallel/1 game
2496 internal fax modem
1 meg Trident VGA Card
Medium tower/ Baby AT/ or Mini Tower

$1595

This is a complete ready to go system!

33mz/256k cache/170HD configured as above W/VESA ET4000 1 meg Video Card **$1795**

DX-2 VESA 66 mz/256k **$2095**

IDE VESA Controller **$75**

16 BITMULTI-MEDIA KIT PRO AUDIO AND NEC CD'S & SOUND BLASTER & CD PLAYER **$995**

VIDEO BLASTER **$370**

High Quality 386

80386 33 mz/64k/120HD
2 floppies/ .28 dot pitch SVGA
Windows/Dos/Mouse
4 megs of RAM
101 kb
2 serial/1 parallel/1 game
2496 internal fax modem
1 meg Trident VGA Card
Medium tower/ Baby AT/ or Mini Tower

$1299

25 mz SX configured as above **$1199**

25 mz SX 2 megs RAM with mono VGA/1 floppy 84 meg Hard Drive MSDOS only **$799**

25 mz SX 1 meg RAM
14" VGA/ MSDOS 5
42 meg Hard Drive
1 floppy/101 keyboard
2 serial/1 parallel

$795

25 mz SX mono, w/42HD **$649**

High Quality 286

16 mz 84 meg Hard Drive
1 Floppy / MSDOS
101 Keyboard
2 serial / 1parallel / 1 game
Mini Tower or Baby AT
.28 SVGA with 512k card
2 Megs of RAM

$999

As above with 42 meg hard disk, 1 meg RAM, 256k video card & VGA **$799**

286/16mz/42HD
1 meg RAM/MSDOS
Mono, 1 floppy,
101 keyboard.

$599

With 8-in-1 works program. **$629**

With LICENSED WordPerfect! **$799**

Panasonic 2180i printer	$190
Panasonic 1123 printer	$239
Starjet 48 360 dpi InkJet	$325
Postscript & HP compatible Laser	$995
800 DPI Postscript for DOS	$1250

Art Online

A Look At Artists, The Arts Community, And Collaborative Artwork In A New Medium—Electronic Networks

BY JUDY MALLOY

There are similarities between going regularly to gallery and art space openings and hanging out in online art communities, I realized as I browsed through arts conferences on the WELL, where arts coverage ranges from poetry to virtual reality. I hadn't spent much time on the WELL for several years, and it was like walking into an opening somewhere South of Market in San Francisco.

At first, I felt ill at ease in the crowd of unfamiliar, often younger voices—like returning to a house that one lived in for years and seeing that it is no longer faded white but a crisp, new yellow. I was on familiar territory with unfamiliar faces, feeling older and detached, longing for the "good old days" when I knew almost every art voice online and could expect to meet all my friends there. But soon, as at any art gathering, I began to react and respond to art talk like "Electronic Art and the Public" on the Art Com Electronic Network Conference. Very soon, I was again a part of an online art community.

ARTISTS ONLINE

Artists who work or talk art online come from varied backgrounds. Gail Williams, who has been the conferencing manager on the WELL since 1991, credits her theatre experience with some of the insight needed to manage the myriad of WELL conferences. In her online bio, she writes: "My best known (original) character has been Virginia Cholesterol of 'Ladies Against Women.' She's *very* quick to judge people, so playing and writing her has taught me to be slower to draw borders! And that helps on the WELL."

Eric Theise, current president of San Francisco Art Institute's Cinematheque's Board, combines an interest in experimental filmmaking with a PhD in operations research. Theise, who teaches ergonomics, human-system interface, and wide area networking, is working with the San Francisco experimental film and video community to broaden its base by posting meeting and progress reports in online systems.

Artists' attitudes and approaches to this text-based cyberspace are varied. "Love is as (if not more) mysterious to me as telecommunications," James Johnson, who teaches art at the University of Colorado at Boulder, wrote me by electronic mail.

"The network will allow for the active use of telecommunications for language and art research, providing a vehicle for intercultural expression," Brazilian artist Artur Matuck said in the email introduction to his "REFLUX" project. "REFLUX" was a collection of online artwork and art discussion, carried on the Internet, that included artists from all over the world and was included in the 1991 Sao Paulo Biennial.

Artists use online systems for publicity, bringing people together, and making actual art. "I've been involved in a virtual community that's come out of its cocoon, and connected in the physical world," says Robert Campanell about the net-raves community, a group of musicians, VR world designers, students, engineers, and 'zine publishers. "The rave scene and techno music is the glue that holds this community together. The net is the infrastructure we use to keep the scene alive and help its continued evolution."

Fred Truck, one of the hosts of The Art Com Electronic Network (ACEN), an arts conference that began on the WELL in 1986, emphasizes communication. "For me," he says, "as it is for me in any community, it is the close friends and sustained dialogue that have become the most important aspect of this virtual community."

In addition to the WELL, there are artists online on college, art school, and university systems as well as in corporations and on CompuServe. Hyperfiction authors Carolyn Guyer, Michael Joyce, and Martha Petry have accounts on America Online. Musician Pauline Oliveros uses MCI Mail and Arts Wire. Hyperfiction publisher Mark Bernstein and artist/curator George Fifield have accounts on The World. USENET arts-related conferences include rec.arts.fine and alt.artcom.

> Like jazz, art created collaboratively online sometimes exists most potently in the moment of its creation.

In Los Angeles, The Electronic Cafe (conceived by Kit Galloway and Sherrie Rabinowitz) combines performance, communication, and community outreach by making telecommunications equipment available in a cafe style artists' space. Artist Paul Rutkovsky uses telecom-

Copyright © 1993 by Judy Malloy. All rights reserved.

Judy Malloy has been making art online since 1986. Her online works include the collaboratively produced "Bad Information," "Thirty Minutes in the Late Afternoon," and "YOU!" Her "narrabases" (narrative databases) include "Uncle Roger," available online on ACEN on the WELL, and "Its Name Was Penelope," recently published by Eastgate Software. She is a coeditor of Leonardo *and* Leonardo *Electronic News.*

YOUR BEST SOURCE
SUPPLIES AND ACCESSORIES

HEWLETT PACKARD

Genuine HP Toner Cartridge

92295A—For HP LaserJet IID, III, IIID, Apple LaserWriter IISC, IINT, IINTX	$\$79^{95}$
92285A—For HP LaserJet, JetPlus, Jet 500 Plus Apple LaserWriter, LaserWriter Plus	$\$79^{95}$
92275A—For HP LaserJet IIP, LaserJet IIIP, Apple Personal LaserWriter NT, SC	$\$64^{95}$
92291A—For HP IIISi	$\$129^{00}$
98A—For HP 4	$\$129^{00}$

DS/HD 1.44 MB **69¢** min 25

DS/DD 800 KB **49¢** min 50

AMERICAL'S NO-PROBLEM LIFETIME WARRANTY

If for any reason Americal Bulk disks fail to function properly during their lifetime under normal use, simply return them and we will cheerfully refund your money or replace them!

—Americal

1.2 MB **DS/HD 37¢** min 50

360 KB **DS/DD 23¢** min 100

Inc. Sleeves & Tabs

3M DC 2120 $\$17^{95}$

BASF

3.5″ DD 800 KB	$\$6^{90}$
3.5″ HD 1.44 MB	11^{60}
5.25″ DD 360 KB	4^{90}
5.25″ HD 1.2 MB	7^{50}

3M

		Fmtd
3.5″ DD 800	$\$7^{79}$	$\$8^{60}$
3.5″ HD 1.44	11^{90}	12^{89}
5.25″ DD 360	5^{19}	5^{99}
5.25″ HD 1.2	7^{89}	$\$8^{60}$

JVC

3.5″ DD 800 KB	$\$6^{90}$
3.5″ HD 1.44 MB	10^{90}
5.25″ DD 360 KB	4^{20}
5.25″ HD 1.2 MB	6^{80}

Dysan 100 Fmtd

3.5″ DD 800 KB	$\$7^{69}$
3.5″ HD 1.44 MB	11^{89}
5.25″ DD 360 KB	5^{29}
5.25″ HD 1.2 MB	7^{99}

KAO

3.5″ DD 800 KB	$\$6^{30}$
3.5″ HD 1.44 MB	10^{90}
5.25″ DD 360 KB	4^{20}
5.25″ HD 1.2 MB	6^{90}

Verbatim

		Teflon
3.5″ DD 800 KB	$\$7^{80}$	$\$8^{99}$
3.5″ HD 1.44 MB	11^{90}	12^{99}
5.25″ DD 360 KB	4^{99}	5^{49}
5.25″ HD 1.2 MB	8^{90}	9^{49}

Shipping - 35¢/box • min. 2 boxes

BACK UP TAPES & CARTS

3M DC2120 **Data Cartridges $\$21^{95}$ ea.**

Stock No.	Size	Qty 2-4	Qty 5+
DC600A	60 MB	20^{95}	$\$19^{90}$
DC2000 QIC40	40 MB	14^{99}	13^{95}
DC2120 QIC80	Formatted	27^{95}	24^{95}
DC2080	80 MB	16^{90}	16^{40}
DC2120 QIC80	120 MB	19^{64}	17^{95}
DC6150	150 MB	22^{29}	21^{30}
DC6250	250 MB	26^{95}	26^{40}
DC6320	320 MB	27^{96}	26^{40}
DC6525	525 MB	32^{10}	31^{60}

• Shipping - 50¢ each

SYQUEST REMOVABLE CARTRIDGE

$\$69^{95}$ 3 or more **SQ 400 44 MB**

Shipping $\$1^{00}$ ea

Order No.	Description	Price Each
SYQ 44	44 MB Syquest Cartridge	$72.95
SYQ 88	88 MB Syquest Cartridge	129.95

For Use With Syquest Drives Only

OPTICAL DISKS

3.5″ & 5.25″

128 MB-650 MB

Shipping $\$2^{00}$

3M & Verbatim Available

Description	Price Ea. 3M	Price Ea. VER
512 Bytes/sector	$\$129^{00}$	$\$129^{00}$
1024 Bytes/sector	149^{00}	129^{00}
128 Bytes/sector	63^{00}	59^{00}

For Use With Optical Disk Drives Only

3.5″ DISK FILE HOLDS 120 $\$9^{95}$ W/LOCK

Flip Top Disk Files

Large - Holds 120-3.5″, 140-5.25″	$\$9^{95}$
Medium - Holds 80-3.5″, 100-5.25″	7^{95}
Medium - Holds 50-3.5″, 50-5.25″	4^{95}

All include lock & 2 keys, tabbed dividers

Shipping - $1.25 each

STACKABLE DISK CABINETS

Holds 210-300

WD3-Wood 3.5″ Drawer, Holds 210 .... $\$18^{95}$

Measures 14.75″W x 5.25″H x 11″D -3 Drawers

WD5-Wood 5.25″ Drawer, Holds 300 .... 18^{95}

Measures 13″W x 7.25″H x 14.5″D -2 Drawers

Shipping - $3.25 each

STACKABLE DISK DRAWERS $\$25^{95}$ Holds 250-320

BD-203 3.5″ Drawer, Holds 250 ..... $\$25^{95}$

BD-205 5.25″ Drawer, Holds 320 ..... 25^{95}

Both measure 13″W x 7.25″H x 14.4″D

Same Footprint! Shipping - $\$3^{00}$

COPY HOLDER w/ARM

$\$14^{95}$

Adj. 30″ Arm moves paper right where you need it, away when you don't. 6 per case

MONITOR MOVER $\$39^{95}$

Holds 60 lb, 11″ x 11″ platform, 2 screw clamp, swivels 360 degrees

Shipping - $\$4.^{00}$ ea.

CPU STAND $\$5^{95}$

Fits most CPU cases, from 4 to 7″ wide

Shipping - $1 ea.

POWER PAD $\$18^{95}$

Controls up to 5 peripherals with lighted switches & master & phone line Shipping - $2.00

SUPER SURGE PROTECTOR $\$12^{95}$

For 6 outlets & phone lines

Shipping - $1.50

HI-RES MOUSE $\$29^{95}$

3 Button Hi-Res Mouse w/software	$\$29^{95}$
3 Button Hi-Res Mouse w/Dr. Halo	$\$35^{95}$
PS/2 Adapter	$\$5^{95}$

20-6200 dpi resolution software, 3 buttons, teflon feet, with optomechanical ball • Shipping - $2 .00 ea

A Complete Line Of Lifetime Guarantee 3M Data Cartridges

Buy 5—Get 6th FREE

HP DeskJet Cartridge..... $\$17^{95}$ ea.

HP DeskJet Ink Refills .. 19^{95} 2 pak

Shipping - $1.00/pak

PRINTING SUPPLIES

HP LASER TONER

For DeskJet, DeskJet Plus & DeskWriter

51608A HP Ink Cartridge	$\$17^{95}$
51626A High Cap. Cartridge Twice Life	29^{95}

For HP ThinkJet, QuietJet & QuietJet Plus

51604A For Plain Paper	$\$11^{95}$
92261A For JetPaper	11^{95}

PRINTER RIBBONS

100's In Stock

Star Micro NX-1000.. $\$2^{94}$

Color

Printer Type	Color	Black
Apple Imagewriter II	$\$5^{95}$	$\$1^{99}$
Citizen GSX-140	$\$9^{89}$	$\$4^{99}$
Epson LQ-800		4^{95}
Okidata 192/193		2^{69}
Panasonic KSP 1524/1624		5^{95}
Panasonic KSP 1124		4^{65}

Call for your printer -100's in stock!

Min order - 6 ribbons per type

Shipping - $\$1^{25}$ per pack of 6

CALL OR FAX US!
1-800-288-8025
SO. CA: 818-765-3040
Fax: 818-765-3887
Call for SAME-DAY SHIPPING
Hours: Mon-Fri, 7am-6pm
Sat, 8am-4pm PST

ORDER TODAY BY 1PM & GET SAME DAY SHIPPING!

AMERICAL GROUP

AMERICAL GROUP COMPUTER PRODUCTS, INC.
12132 SHERMAN WAY • NORTH HOLLYWOOD, CA 91605

VISA MasterCard AMERICAN EXPRESS DISCOVER

SAME-DAY SHIPPING

Orders in by 1 pm will be shipped the same day—others, the next day. All orders charged $4 handling fee. No extra charges for Visa, Mastercard, or Discover. Calif. residents please add 7% sales tax. Add $5 if COD. Shipping charges for 48 states ONLY—Call for FPO, APO, overseas, airfreight, HI, AK, & PR, or special charges for purchase orders. PO's accepted from gov't agencies, schools & Fortune 500 Co's ONLY. Prices subject to change. Logos are the property of their companies. © 1991 Americal Group

munications in his University of Florida classroom. Recently, his students used email to ask artists all over the world about problems in their communities. At San Francisco State, artist Stephen Wilson taught an entire course on art and telecommunications. At the School of Art at Northern Illinois University, Mary Beams is soliciting digital quilt squares by email. The resulting "quilt" will be exhibited as part of Women's History Month.

At Carnegie Mellon University's Studio for Creative Inquiry, Carl Loeffler directs a Telecommunications and Virtual Reality Program. The project investigates the basis for multiple users located in distant geographical locations, to be conjoined in the same virtual, immersion environment. It employs telecommunication hardware, as well as the hardware associated with virtual reality—head-mounted display and multi-directional navigation devices—and utilizes WorldToolKit, a virtual world development program, available from Sense8 Corporation.

> Artists' attitudes and approaches to this text-based cyberspace are varied. "Love is as (if not more) mysterious to me as telecommunications," James Johnson, who teaches art at the University of Colorado at Boulder, wrote me by electronic mail.

```
Topic 688: ELECTRONIC ART AND THE PUBLIC... # 1:
Carl Eugene Loeffler (artcomtv) Sun, Jan 24, '93
(09:17)

So, to recap my position... there is but little
sense to look at an audience for support if the
audience isn't interested to begin with... and
there is no reason to get upset by such an
audience or feel rejected, etc. Art, like
anything, has antibodies. Classic case is the
battle between the Abstract Expressionists and
the POP artists. Or, then the POP artists VS the
Minimalists. The key to the success of these
movements, is that they started their own gang
and clubhouse.

Enter electronic art, boy does this set off the
antibodies...
```

Art talk on Art Com Electronic Network on the WELL

COLLABORATIVE ART ONLINE

Online environments are text-based cyberspaces shared by many other minds. In these systems, art can thrive outside the confining walls of galleries, museums, and book covers. Art is part of a group mind, and the artist can shape art not only *for* that group mind, but *with* that group mind. "In contrast to the telephone or television," explains Anna Couey, the network coordinator of Arts Wire, "computer networks are a many-to-many communications medium—the virtual communities that inhabit them exist through active participation amongst their members." Couey, who recently coordinated Cultures in Cyberspace, a virtual panel running on five systems in conjunction with TISEA (the Third International Symposium on Electronic Art) in Sydney, Australia, feels that "this technology would seem to incur a new social order—one based on reciprocity and interaction."

Like jazz, art created collaboratively online sometimes exists most potently in the moment of its creation. As they were in the performance art of the last decades, shared experience and connection are integral materials in this art, but online collaborative works go a step further than most performance art did by actively involving the audience in the creation process.

Collaborative online projects can involve many artists and/or audience participants. Artist Brian Andreas has gathered stories for his "Hall of Whispers" by email and on the WELL (in addition to fax and conversation with neighbors). "Hall of Whispers" is a collaboratively produced narrative that simulates mythological Babylonian ziggurat rooms where whispers were permanent residents. Andreas started with themes that his neighbors could connect to—generation gap stories, parenting stories, moments of love. "Story is an invitation rather than a statement of position," he told me.

Electronic mail or conferencing systems can also be used by a few artists to make a collaborative artwork. Hyperfiction authors Martha Petty and Carolyn Guyer wrote their "Izme Pass" by passing text sections back and forth on the Internet. "Hard trying to find a more spontaneous way to do this," Guyer told me by electronic mail. "Collaboration should ideally have all means of communication open and available, especially the simultaneous: physical proximity and conversation. But when geographical distance intervenes, we're left with what technology can offer. Telephone talk, each in front of her computer, or live 'synchro' talk online. Otherwise, we're left with an awkward system of turn-taking, and a willingness to tolerate some free-form stuff which is likely to happen in between the times one of us has a turn at the file." "Izme Pass" was published, in disk form, as part of the Spring 1991 issue of *Writing on the Edge*. "Working over distance and having to 'keep track' places some restraint on the creative process," Guyer says, "but in order to have the other kinds of artistic freedom we seek, it surely is worth it."

PUBLISHING, LITERATURE, AND ART ONLINE

Evolving hardware can rapidly outdate machine-specific electronic literature or "artware," and readers are limited to the specific machine the work was written for. In contrast, literature published online, in electronic form, can be accessed and read by anyone with a computer and modem, and it does not require continual updating. "This kind of electronic publishing encourages experimentation and evolution of the content and format of the publishing products," wrote Roger Malina, the executive editor of *Leonardo*, in a special issue (edited by Roy

RESOURCES

America Online
8619 Westwood
Center Dr.
Vienna, VA 22182-
2285
1-800-827-6364

Art Com
PO Box 3123 Rincon
San Francisco, CA
94119-3123
Email:
<artcomtv@well.sf.ca.us>

Arts Wire
Anna Couey, Arts Wire
Network Coordinator
1077 Treat Ave.
San Francisco, CA
94110
(415)826-6743
Email:
<couey@tmn.com>;
<couey@well.sf.ca.us>

CompuServe
New Order Department
816
PO Box 20212
Columbus, Ohio
43220-9922
1-800-848-8199

Digital Quilt
Mary Beams
School of Art, Northern
Illinois University
DeKalb, IL 60115
Email:
<quilt@art.niu.edu>

Electronic Cafe
1641 18th St.
Santa Monica, CA
90404

Multimedia Solutions Direct from The Experts

SuperVIA & PhotoFinish

WINDOWS 3.X SUPPORT ADI DRIVER
PhotoFinish

NOW supports Microsoft Video for WINDOWS

AVideo 1991 HOTTEST PRODUCT

$429

Featuring MovieMaker - JPEG Compression
Capture Color Video Images in Real Time (640 x 480)

The SuperVIA can furnish the non-technical user with super color image capture capability in real time, 1/60th or 1/30th of a second, and display them on VGA, up to 640x480 resolution in 256 or 32K colors. Featuring Multiple Sequential Frame Storage, the Supervia can digitize a series of images in real time and save them to FLC or FLI Animator files. Supervia is a powerful tool for animation, bundled with a full version of PhotoFinish. PS/2 MicroChannel and PAL version available.

File Format: GIF, TIFF, PCX, CUT, IMG, TGA, FLI & FLC, JPEG.
Input: Composite NTSC, S-Video, Analog RGB.

QUICKVIA Digital Video

QUICKVIA AVI Movie Recorder

$289

The most affordable solution to produce full-motion AVI (MS Video for Windows) movies right on your desktop. Real time capture at up to 30 frames per second digital video window.

- Complete, single-slot digital video capture solution
- Video capture in varying window size: 320x240/160x120/80x60
- Stores digital video on ordinary hard disk
- Support for AVI and MCI interface in MS Windows.
- Captures digital video as 16-Bit RGB in real time to disk.
- Composite, S-Video input for NTSC and PAL (optional).

Digital Video Software

MS Video for Windows

$CALL

The best way to express your ideas is to show them in action and the strongest way to do that is with VIdeo for Windows. Capture live video and sound with our QUICKVIA video board and SONIA MCI sound board, and show them right from your PC, with Video for Windows without any specialized video hardware.

Still Video Camera

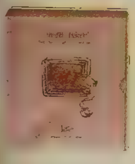
Canon XAPSHOT

State-of-the-art Still Video Camera con- verts images to electromagnetic im- pulses for recording and direct display on any NTSC type TV or monitor. With the use of Video Floppies instead of film, there is no waiste, no waiting.

RC-250 **$455**
RC-360
RC-570 **$CALL**

Media Master

Authoring Software

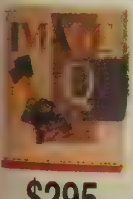


Multimedia authoring made easy! Create powerful interactive or self running multi-media applications combining text with still images, sound, animation and live video without the use of complicated programming and scripting languages. Media Master's innovative HyperButton Authoring Technology allows even novice computer users to create and distribute Royalty Free interactive applications. The total solution for educational, medical & industrial training, corporate presentations, & other A/V applications.

$689

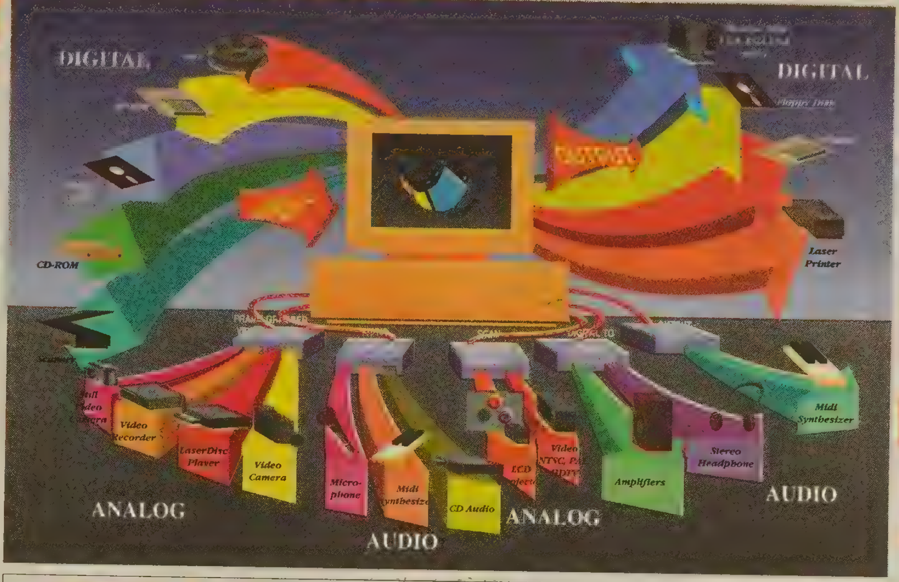
ImageQ for Windows

Professional Presentation Software



If you need to show true-color images for your technical seminars or client presentations, use ImageQ for Windows to communicate your visuals with the clarity they deserve. Whether it's a simple slide show or a fully interactive presentation, use the programmability and quality of ImageQ to display your 24-bit Targa, BMP and Tiff files. Visual slide sorting, on-the-fly conversion of true-color images to Super-VGA. Automatic creation of presenter notes and viewer handouts. Support for all sound boards compatible with MCI, and extended MCI functions for video.

$295



JOVIAN *MultiMedia Series*

AVerKey

The flicker-free AVerKey encoder takes high quality graphics from any VGA system and enables you to produce them in superb quality video. The AVerKey supports all IBM standard modes up to 640x480 resolution with any number of color for NTSC video. The AVerKey is the ideal encoder for Windows or graphics applications with simultaneous display on both VGA and TV monitors. PAL version available.

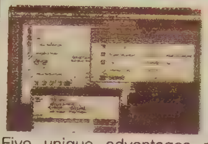
Input: Analog RGB signal from VGA display adapter (31KHz), 9V-DC power adapter.
Output: S-Video, composite video, video RGB (15KHz), and VGA loop-thru.

Your PC-Video Link

Affordable palmtop size Scan Converter

$296

AUTHORWARE PROFESSIONAL



The Premiere Authoring Tool

Five unique advantages makes Authorware Professional the premier multimedia authoring tool. **Object Authoring :** Iconic interface controls the logic, and eases complex authoring. **Multiplatform Architecture:** Supports nearly identical authoring environments on both MAC and Windows platforms. **Multimedia tools:** Power to incorporate text, graphics, sounds, animation, and digital video into applications. **Media Manager** : Increases author productivity and reduces application size, by storing the media in libraries separate from the application. **Superior Design**: Built-in Computer Managed Instruction variables help collect and measure user's performance.

Call us for a demonstration

VIGA+ PowerPak

$CALL

"100% TARGA+ Clone... an excellent low cost alternative.." combined with T-Tools the power utilities for the classic TARGA users. The PowerPak performs chroma keying, video grabs, Multiple Frame Capture, Strobe EFX, Print to Laserjet, and much more. The PowerPak comes with a collection of 28 utilities and a VIGA+ 16/32 Targa compatible board. 64+ and PAL avail.

Input: NTSC color composite video, analog RGB, or S-VIdeo signal.
Output: S-Video, analog RGB, or composite video signal.

Sony CDU-31A

Low cost Photo-CD compatable CD-ROM drive

-490 ms access time
-150 KB data transfer rate
-64K K buffer

Best Price **$CALL**

Toshiba 3401B

The new Toshiba CD ROM drive will give your CD based multi-media application the speed that it needs.

-200 ms Acess Time
-330 KB Data Transfer Rate

Best Price **$CALL**

TEXEL CD-ROM

The TEXEL high-performance CD-ROM drives are intended for demanding multi-media applications such as animation, graphics, 3-D modeling, and full-motion video. The Double-Speed technology motor allows a 300KB/sec data transfer rate, and an average access time of 265ms. The drives are CD-XA ready. Designed to resist environmental contamination via a dust resistant door, sealed chassis, and a self- cleaning lens mechanism. Prices include controller. COMPLETE TEXEL MULTIMEDIA UP-GRADE KIT AVAILABLE.

CALL DIGITAL MEDIA LABS for Photo-CD READY SOLUTIONS.

Internal **$489**
External **$595**

SOUND GALAXY NX PRO

The Only Stereo Sound Card with 4 Sound Standards

Support 4 sound standards: Sound Blaster Pro 2, AdLib, Covox Speech Thing, and Disney Sound Source. 20 voices-4 operators stereo FM synthesizer with built-in midi interface. Support recording from stereo mic, line-in and CD-Audio and stereo digital/analog mixer. Built-in AT bus CD-ROM interface with option for SCSI interface. Bundled software included: Monologue, Windat, SoundScript, Jukebox, CD-Player, Sound tracks and Galaxy Master.

$149

Digital Desktop Presentation

$429 AV1000VH + **$649**

The AV1000VH is a VGA adapter combo allowing flicker-free TV output. The board is comprised of a Tseng Labs VGA chip and a RamDAC allowing 32k color display for Windows and other applications supporting true-color display. Composite video, S-Video and RGB are outputs from this board. Digital Media Labs combines it with ImageQ presentation software to furnish the modern desktop presenter with the ultimate multimedia tools.

OUR REFERENCES IBM, CHEVRON, EGLAND AIR FORCE BASE, US NAVY UNIVERSITY OF CHICAGO, LAWRENCE LIVERMORE LABS SAN FRANCISCO STATE, UNION CARBIDE ELECTRONICS ART LUCAS FILMS FORTUNE 500

SONIA HI-FI AUDIO BOARD

MCI Ready

$389

For real CD quality - at very affordable cost - The Sonia audio processor is a digital Stereo Recorder-Playback, with 4 operator FM synthesizer for ADLIB compatibility, MIDI and mixing output controls. The Sonia design is based on a 10 MIPS digital signal processor (DSP) to digitize Stereo audio at 16-Bit resolution with software selectable sampling rates of 16, 22, 32, 44.1, 48 KHz to provide audio comparable to CD-Audio and DAT. Voyetra and MCI drivers are included for midi compatibility under Windows 3.X.

MICROSOFT SOUND SYSTEM

MCI Ready

$205

Microsoft Windows Sound System sampled in both 8and 16-bit modes. Six windows applications are included: Quick Recorder, with ability to link audio icons to OLE-aware applications. Voice Pilot lets you control the machine by voice command; Proof Reader for Microsoft Excel and Lotus 123; Sound Finder converts AIF, SND, VOC file formats to WAV.

VINPlus

Convert Computer Image to TV Video

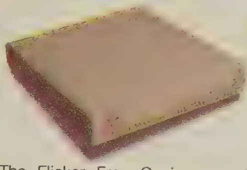
$189

The VINPlus encoder box is the perfect VGA accessory. It converts the signal from your VGA or SuperVGA computer display (up to 640x480 resolution with 256 colors) into a professional TV video signal. PAL version available.

Input Signal: Analog RGB signal from VGA display, or video RGB.
Output Signal: Composite, S-Video, 15.75KHz multisync VGA output.
Size: 6.75W x 4.38D x 1.5H (internal card available for $219)

GENIE Scan Converter

Featuring "Full Underscan" Video



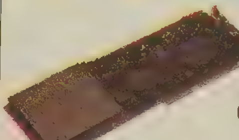
The First low cost "PRO" Scan Converter for IBM and MAC

$1150

The Flicker Free Genie converts standard VGA or Mac graphics from your computer to a Composite, S-Video or RGB video signal in either NTSC or PAL (optional). Genie requires no software or special hardware to be installed, and allows simultaneous display on your computer screen and video monitor. Genlock capable. Automatic detection IBM or MAC.
Size: 12.25W x 14.75D x 2.5H

Desktop Video

Video Genlock Overlay



$629
PRO-CG

INSCRIBER or PrimeTime Professional titling software from $395.00

Digital Media Labs PRO-CG video overlay solution, bring to the desktop videomaker professional quality video titling with superb quality true-color anti-aliased text, and video effects. The desktop video package allows crisp, text to be merged with generated graphics, captured images or live video, or sequence your screens with credit rolls, crawls, and variable transitions. The hardware features overlay with Genlock, broadcast quality composite, S-video output. Optional add-on for Betacam (YUV) output. Call us for a full line of INSCRIBER professional titling software.

Digital Desktop Video

$CALL

MediaSpace Digital Media adapter

MediaSpace is an add-in card that provides real-time, high quality compression and decompression of video and audio. Digitizes real-time video and audio up to DAT quality. Provides outstanding picture quality at any size. Video for Windows (AVI) conversion software now available with Media-Space.

Computer Based Training
Presentations
Teleconferencing
Video E-mail

Digital Media Labs™

To order, call
510-438-9046
47913 Fremont Blvd. FREMONT, CA 94538

Information: [illegible]
Fax: [illegible]
Mon - Fri between 7am - 6pm
Saturday
between [illegible]

TERMS AND CONDITIONS

[illegible]

Positive Solution Compu

DBA PS Computer

Visit Us to See the Largest Midi/Multimedia Selection in The Bay Area

486DX-50MHz 256K Cache System

- 4MB RAM (70ns) Expandable to 32MB
- 200MB Maxtor (15ms) Hard Drive
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 1:1 Interleave 2HD/2FD IDE Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- Real Time Clock w/Battery Backup
- Mini tower or Desktop Case with Power Supply
- 101 Enhanced Keyboard
- 1MB Trident SVGA Card
- Impression Non-interlaced 14" 1024x768, .28 dot SVGA monitor

3-Button High Quality Mouse w/System Purchase

$1675

486DX-33MHz 256K Cache System

- 4MB RAM (70ns) Expandable to 32MB
- 120MB Conner (19ms) Hard Disk
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 1:1 Interleave 2HD/2FD IDE Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- Real Time Clock w/Battery Backup
- Mini tower or Desktop Case with Power Supply (Digital Display)
- 101 Enhanced Keyboard
- 1MB Trident SVGA Card
- Impression 14" 1024x768, .28 dot SVGA monitor

3-Button High Quality Mouse w/System Purchase

$1370

386DX-33/40MHz 64K Cache System

- 4MB RAM (70ns) Expandable to 32MB
- 85MB Conner (17ms) Hard Disk
- 1.2MB 5.25" and 1.44MB 3.5" Floppy Drives
- 1:1 Interleave 2HD/2FD IDE Controller
- 2 Serial, 1 Parallel, and 1 Game Ports
- Real Time Clock w/Battery Backup
- Mini tower or Desktop Case with Power Supply
- 101 Enhanced Keyboard
- 1MB Trident SVGA Card
- Impression 14" 1024x768, .28 dot SVGA monitor

3-Button High Quality Mouse w/System Purchase

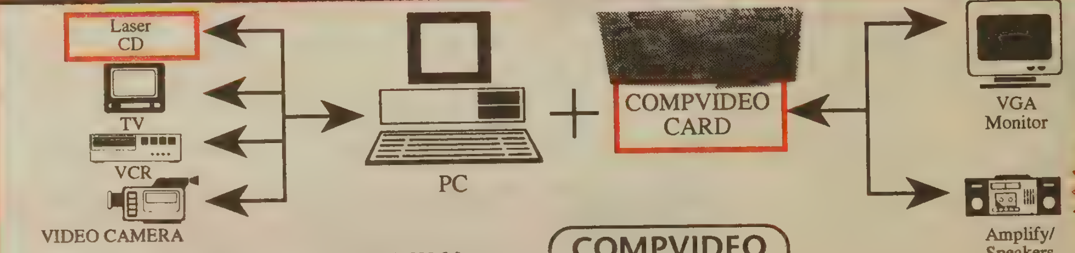
$970/980

386SX-25/33MHz

- 2MB RAM (70ns)
- Expandable to 16MB
- 40MB Hard Disk
- IDE Controller
- 1.2MB 5.25" and 1.44MB 3.5" FDD
- 2 Serial, 1 Parallel, and 1 Game Ports
- Desktop w/ Power Supply
- 101 Enhanced Keyboard
- VGA Monitor w/VGA Card

3-Button High Quality Mouse w/System Purchase

$730/770



BIG NEWS for C&T PC Video Users

MULTIMEDIA PRODUCT FAMILY

Compvideo 3.0 Image Capture board

With on-screen sound control, view from full screen to any size of Windows while you are running other Windows programs at the same time. Up to 3 video sources at one time. You can capture 24 bits of true color picture for live video. Freeze, zoom, grab, color adjust, edit (cut, paste, rotate, ...).

COMPVIDEO 3.0 $400

Saves to tiff, tga, bmp, mmp format. Supports 640x480 64K High Color VGA Mode with feature connector. J-PEG compression, Image database & processing. Works with Microsoft Video Interleaved (AVI) driver for image compression during capture.

COMPVIDEO 1.0 $190

Image Viewing Board
TV to VGA Converter

COMPVIDEO 2.0 $280

Convert Your Computer Presentation Or Animation To Display On TV Or VCR

POWER BLASTER

- Full Sound Blaster Compatible

$65

POWER BLASTER Jr. FM Sound Card

- 11 Voice
- Sound Blaster & Windows 3.1 Compatible

$30

MM POWER PCM GM

- MPU-40 (UART Mode)
- Windows 3.1
- GM/MT-32 Game
- Upgrade the sound of your Sound Blaster

$125

AMPLIFIER STEREO COMPUTER SPEAKERS

$10

2 Watt $18

25Watt $55

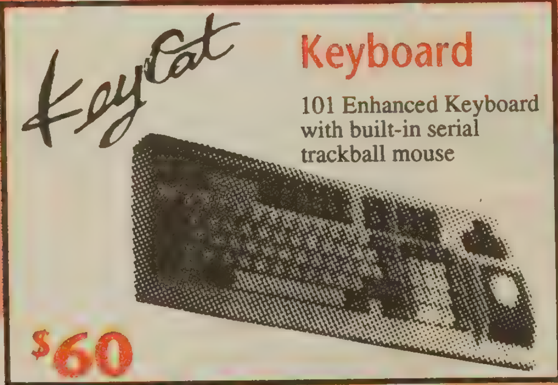
75Watt $100

14,000 Public Domain Software in one CD-DISK

$25

MIDI Sound CD for Windows

$25



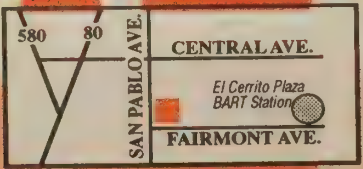
Keyboard

101 Enhanced Keyboard with built-in serial trackball mouse

$60

SPECIALS

120/250MB Colorado Tape Backup	$185/245
2400 Internal Modem	35
9600 FAX/2400 Modem	60
w/Bit FAX for Windows	65
4800 FAX Send/2400 Modem Pocket	65
9600 FAX/2400 Modem Pocket	115
14,400 FAX/14,400 Modem	220
Mini Tower w/200 Watt Power Supply	60
Medium Tower w/200 Watt Power Supply	80
Desktop Case w/200 Watt Power Supply	65
3-Button Mouse	9.50
Logitech Mouseman	49
Microsoft Mouse	55
DOS 5.0 or Windows 3.1 Package w/System Purchase	40



10032 San Pablo Ave.
El Cerrito, CA 94530
TEL. (510) 527-6908

OPEN 6 DAYS
Mon-Sat: 9:30am to 6pm
FAX (510) 527-3823

MasterCard COD VISA

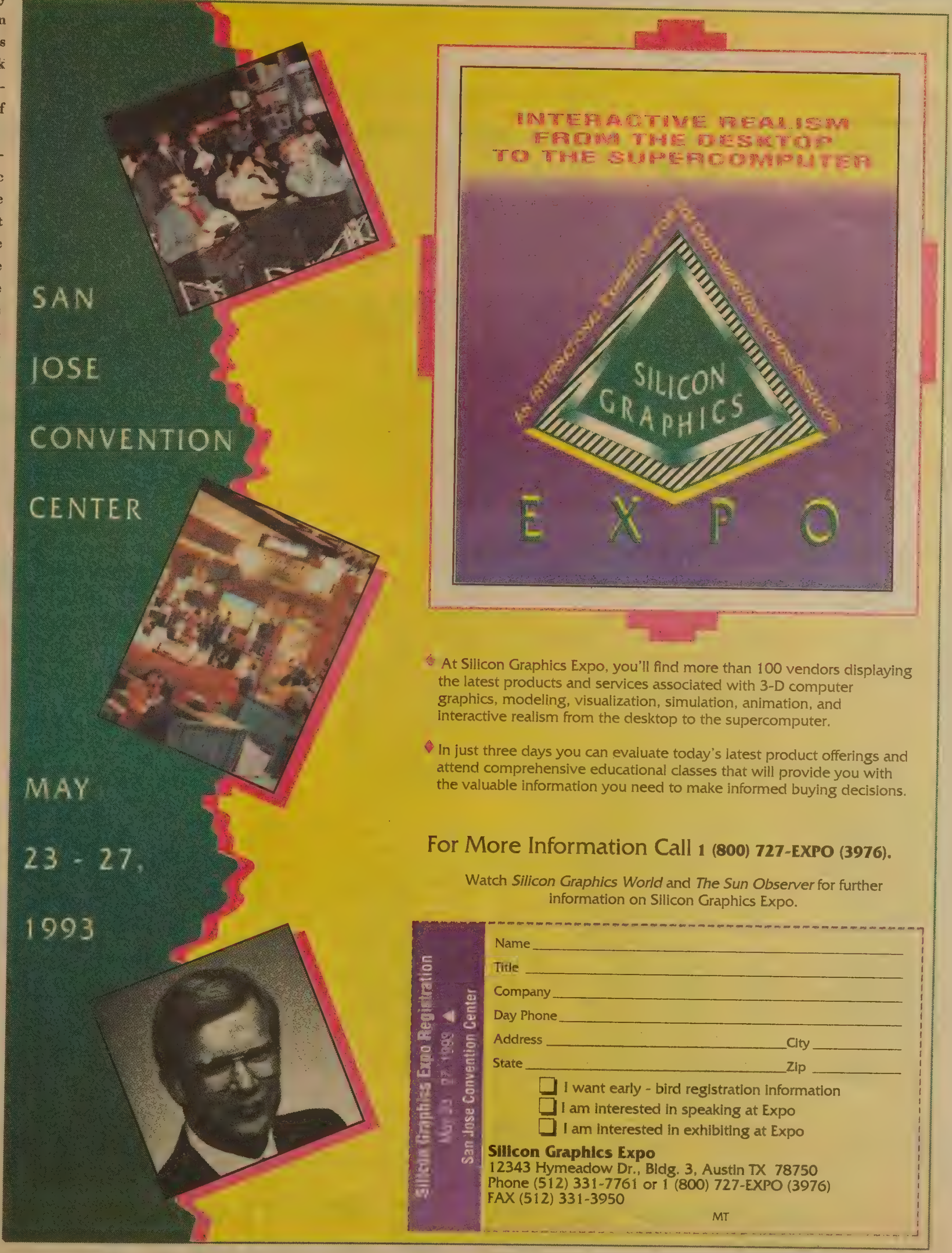
You Can Count on Our Best Price and Qualified Service! • 7 Years Labor & 1 Year Parts Warranty!

Ascott and Carl Loeffler) on "Connectivity: Art and Interactive Telecommunications."

ACEN pioneered dial-in electronic books. The Art Com menu on the WELL includes "The Heart of the Machine" by Ian Ferrier (in cooperation with Les Editions Dromoslogiques), a work that allows readers to participate in the creation of the characters.

The electronic art journal "Leonardo Electronic News" (available on the Internet) and the online art information database F.A.S.T. (FineArt Science and Technology), available on the WELL, are projects of Leonardo, The International Society for Art, Sciences and Technology. A recent issue of "Leonardo Electronic News" contains descriptions of art that range from a "Sound Playground" built by Bill and Mary Buchen in the South Bronx, New York City, to "Ghost Nets," an environmental work by Aviva Rahmani situated on an island off the coast of Maine, to a recent issue of the French literary journal *Action Poetique* that includes a Macintosh disk. It also includes information about a Russian film company that was sent by email from Georgia, Russia.

Arts Wire, a computer-based network and electronic meeting place for artists and the arts community, is a program of the New York Foundation for the Arts. Its project director, Anne Focke, is in Seattle, and its network coordinator, Anna Couey, is in San Francisco. Arts Wire carries a news summary on social, political, philosophical, and economic conditions in the arts and a searchable resource of grant deadlines and other opportunities for artists. It also includes resources, discussion groups, and directories such as "Arts Wire Directory," a searchable directory of the people and organizations on Arts Wire. Much of the information on Arts Wire comes from associated interest groups that range from the Association of Independent Video and Filmmakers, Inc. to the Visual AIDS and the AIDS Working Group. Arts Wire is part of the Meta Network,


SAN JOSE CONVENTION CENTER
MAY 23 - 27, 1993
INTERACTIVE REALISM FROM THE DESKTOP TO THE SUPERCOMPUTER
SILICON GRAPHICS
EXPO

◆ At Silicon Graphics Expo, you'll find more than 100 vendors displaying the latest products and services associated with 3-D computer graphics, modeling, visualization, simulation, animation, and interactive realism from the desktop to the supercomputer.

◆ In just three days you can evaluate today's latest product offerings and attend comprehensive educational classes that will provide you with the valuable information you need to make informed buying decisions.

For More Information Call **1 (800) 727-EXPO (3976).**

Watch *Silicon Graphics World* and *The Sun Observer* for further information on Silicon Graphics Expo.

Silicon Graphics Expo Registration
May 23 - 27, 1993 ▲
San Jose Convention Center

Name ____________________
Title ____________________
Company ____________________
Day Phone ____________________
Address ____________________ City ____________
State ____________________ Zip ____________

☐ I want early - bird registration information
☐ I am interested in speaking at Expo
☐ I am interested in exhibiting at Expo

Silicon Graphics Expo
12343 Hymeadow Dr., Bldg. 3, Austin TX 78750
Phone (512) 331-7761 or 1 (800) 727-EXPO (3976)
FAX (512) 331-3950

MT

SAVE THE HASSLE! BRING IN YOUR COMPUTER AND OUR TECHS WILL HELP YOU INSTALL OUR KITS FOR FREE!

LOWEST PRICES GUARANTEED!* FREE INSTALLATION!

*** WE'LL MATCH OR BEAT ANY ADVERTISED PRICE! CALL FOR DETAILS. OVER 1000 CD-ROM DRIVES SOLD IN THE LAST 4 MONTHS!**

TEXEL

SPECIAL LIQUIDATION!!

DM3024 $399 DM-5024 Add $100

265ms Average Access, 300kb/sec Transfer Rate
64kb Buffer, Photo CD, XA Mode 1 & 2, SCSI 2
Double-Speed Drive for the Price of a Single-Speed

AND NOW GET A

COMPLETE MULTIMEDIA KIT $529

TEXEL DM3024 DOUBLE-SPEED CD-ROM & MEDIAVISION'S PROAUDIO SPECTRUM PLUS (OEM)
16-BIT SCSI INTERFACE
INCLUDES ALL CD-ROM DRIVERS,
AUDIO AND SCSI CABLES... READY TO GO!

HIGH SPEED

LOW COST

get a MULTIMEDIA SOUND CARD at the LOW COST of a SCSI INTERFACE!
ADD $149 FOR EXTERNAL KIT, ADD $59 FOR PAS 16

COMPLETE KIT: T130 SCSI Card & SCSI Cable Add $79

NEC

LOW COST PORTABLE CD-ROM

CDR-25 $259 BATTERY Optional

CDR-83 INT. SCSI CD-ROM
FAST 300ms Access Time, 150kb/sec Transfer, 64kb **$349** ADD $139 For PAS Plus

CDR-84 DOUBLE-SPEED SCSI
FAST 280ms Access Time, 300kb/sec Transfer, 64kb **$509** EXTERNAL Add $100

MPS BEST VALUE!

PRO AUDIO SPECTRUM PLUS
16-Bit Interface, 44kHz Sampling
20 voices, 4 Watt, Industry Standard

PHILLIPS CM-205
FAST 375ms Average Access
150kb/sec Transfer Rate
64kb Buffer, MPC Compliant
Hassle Free Caddyless Drive

5 CD-ROM TITLES
CHOOSE ANY FIVE TITLES BELOW
& FREE SPEAKERS

THE ANIMALS!
BEAUTY & THE BEAST
CHESSMASTER 3000
JONES IN FAST LANE
KINGS QUEST V SIERRA
LOOM BY LUCAS ARTS
MPC WIZARD BY ARIS

NOW ONLY $439
WHILE SUPPLIES LAST

PC-SIG 9TH EDITION
PETER AND THE WOLF
SO MUCH SHAREWARE
STELLAR 7 (3D COMBAT)
TIME TABLE OF HISTORY
U.S./WORLD ATLAS PAK
WORLD ATLAS (MPC)

WHY BUY TITLES YOU DONT NEED? CUSTOM CHOICE!
SORRY, NO SUBSTITUTIONS... BUT LIFETIME DISCOUNTS ON ALL OTHER TITLES!**

UPGRADE TO THE ULTIMATE

PROAUDIO SPECTRUM 16 (OEM)

Add the MediaVision ProAudio 16 Sound Card with
Any Internal/External SCSI CD-ROM Drive Listed Above
THIS KIT INCLUDES CD-ROM DRIVERS,
AUDIO AND SCSI CABLES– ALL READY TO GO!!

ADD **$189** EXTERNAL ADD $229

UPGRADE TO THE PAS PLUS FOR $149 / $189

TOSHIBA

NEW! FASTEST CD-ROM DRIVE

3401B $499 EXTERNAL Add $100

200ms Avg. Access, 330kb/sec Transfer Rate
256k Buffer, Photo CD Multisession, XA, SCSI 2
4X Sampling f/Studio-Quality Red Book Audio

We tested the Toshiba 3401B with the built-in SCSI-2 interface on the ProAudio Spectrum 16 sound card and found the pair to achieve the highest performance compared to any other SCSI interface. Aris's MPC Wizard tested it out at 380 kb/sec for its Transfer Rate!!

TOSHIBA 3101B LOW COST SCSI

THE LOWEST COST SCSI CD-ROM DRIVE

380ms Average Access,
150kb/sec Transfer Rate
64kb Buffer (IBM OEM)

External ADD $50 **$249**

COMPLETE KIT: TMC850 SCSI Card & Cable ADD $60

CREATIVE LABS

SOUND BLASTER 16 ASP

FREE GROLIER'S MPC ENCYCLOPEDIA!
16-Bit ASP CD-Quality Sampling/Playback
CD-ROM Interface, Microphone Included **$279**

SOUND BLASTER PRO (OEM)

Industry Standard Sound Card, 44kHz, 20v
SONY CD-ROM Interface, Drivers, Cables **$139**

ADD THE SONY CDU-31A (XA, PHOTO-CD) FOR $249
Chess 3000, Wing Comdr, Ultima VI CD-ROM FOR $29 (Both Offers Only for PRO)

OVER 100 CD-ROM TITLES IN STOCK FOR MAC, PC, & MPC!

NEW TITLES OF THE MONTH!	*with Drive	^w/o Drive
Arthur Teacher's Trouble (Kid's)	$29	$39
ACS Sound Library (MOD's WAV's)	$19	$29
Battle Chess on CD-ROM	$35	$45
Illus. Works of Holy Bible (Anim's)	$29	$39
Illus Works of Shakespeare	$29	$39
PC-SIG 11th Edition Shareware	$29	$39
PRO Phone 3disc Set '93 New Search	119	129
Space Quest IV CD-ROM by Sierra	$35	$45
Sports Best (3 Popular Games)	$29	$39

APPLICATON/GRAPHICS		
Action! Macromind (Authoring App)	$19	$29
Agfa Type CD-Font Library for MAC	$89	$99
Desktop Publishing CD v2.0 MAC	$29	$39
DTPRO FM-Wave Clipart MAC/PC	$19	$29
Electronic Library of Art Vol 1 MPC	$29	$39
Int'l Graphics Lib. (24bit MAC/PC)	$29	$39
Kodak PhotoCD Access MAC/MPC	$35	$39
Lotus 1-2-3 Multimedia Ed, MPC	$89	N/A
MediaClips 4 Disc Set MAC/MPC	$59	$79
Microsoft Works (4 Applications!)	$59	$69
Multimedia Make Your Point MPC	$59	$69
Macintosh CD-ROM Software Driver	$39	$39
Macromind CD ClipAnim,Snds MAC	$19	$29
Macromind Director ver 2.0 MAC	129	149
Ocean Digital Imagery Vol. 1 PC	$29	$39
Publish It! v2.0 w/Clip Art & Fonts	$29	$39
Sports ROM Clipart Images PC	$29	$39
Video for Windows w/CD Sampler	129	139

BUSINESS CD-ROM TITLES		
Amer. Bus. Phone Book '91 (9-Mil)	$19	$29
Amer. Bus. Phone Book '92 (10mil)	$32	$49
Coporate Snapshot (11k InfoData)	$29	$39
Int'l Business & Economic Atlas	$29	$39
Marketing Master '92 (Bus Leads	$19	$29
Pro Phone 3-CD ROM Disc Set '92	$69	$89

EDU-MEDIA CD-ROM TITLES	*with Drive	^w/o Drive
Atlas Pack 2disc Set (World & US)	$29	$39
Aesop's Fables (54 Narr. Fables)	$35	$39
Animals v1.0 San Diego Zoo MPC	$29	$39
Beethoven's 9th Symphony MAC	$75	$79
Beethoven's String Quart #14 MAC	$19	$29
Bookshelf '92, Microsoft (7ref. Lib)	$69	Call
Bring World to Your Senses MPC	$10	$15
CIA World Fact Book '92 New!	$19	$29
California Electronic Traveler MPC	$35	$39
Collosal Cookbook (Recipes, etc.)	$19	$25
Comptons Interactive Ency. NEW!	269	289
Comptons Multimedia Ency. MPC	$79	Call
Comptons MPC Ency. no/Manuals	$49	$59
Composer Quest MPC	$39	$49
Cinemania, Microsoft MPC	$59	$69
Desert Storm Time's MAC/MPC	$21	$29
Dictionaries & languages DOS	$29	$39
Encarta, Microsoft MPC NEW!	269	289
Family Doctor (1500 Medical Q&A)	$29	$39
Family Education Collections	$29	$39
GeoVision (Vector based Worldmap)	$14	$15
Groliers New MM Encyclopedia '92	$69	$79
Great Cities of the World Vol 1&2 ea.	$21	$29
Greatest Books Collection 150	$39	$49
Library of the Future (450 Titles)	$45	$49
Mayo Clinic Health reference MPC	$39	$49
Mavis Beacon Teaches Typing MPC	$25	$35
Mammals Nat'l Geographics PC	$29	$39
Mozart, A Multimeda Musicbook	$35	$39
Multimedia Beethoven 9th MPC	$52	$65
Musical Instruments Microsoft	$59	$69
Space Adventure (Interactive!)	$42	$49
Street Atlas USA MPC	$95	109
Time Table of Science & Innov.	$19	$29
Time Magazine Almanac 1991	$29	$39
Toolworks Groilers Ency. '91 MAC	$59	$79
Toolworks Reference Library PC	$29	$39
U.S. Atlas with Automap DOS	$29	$39
U.S. History on CD-ROM MAC/PC	$29	$39
USA Wars: Civil, Korea, WWII, ea	$35	$45
World Atlas v3.0 Windows MPC	$29	$39

ULTI-TAINMENT CD TILES	*with Drive	^w/o Drive
Chessmaster 3000 Enhanced MPC	$19	$29
Guiness Disc of Records '92 MPC	$29	$39
Guy Spy (1500 frames Anim) MAC	$35	$39
Jones in the Fast Lane MPC	$26	$35
Kings Quest V MPC	$29	$39
Loom from Lucas Film	$25	$35
Monkey Island (Pirate Adventure)	$29	$39
PC-SIG Library 9th Edition DOS	$29	$39
Secret Weapons of Luftwaffe	$25	$35
Sherlock Holmes, Cons. Det I	$25	$35
Sherlock Holmes, Cons. Det II	$49	$59
So Much Shareware Vol 1. DOS	$16	$19
So Much Shareware Vol 2. DOS	$22	$29
Stellar 7 (Space Voyage Game)	$19	$25
Total Baseball (States) MAC/PC	$39	$59
Ultima I-VI Collection on CD	$45	$55
Where in World is Carmen San	$29	$39
Winware Volumes 1 & 2 MPC	$29	$35
Wing Commdr & Secret Mis 1 & 2	$29	$49
Wing Commander & Ultima VI	$25	$39
Wing Commdr II w/Speech Pak	$59	$35

KID'S CD-ROM TITLES		
Amanda Stories MPC	$39	$49
Annabel's Dreams MAC/MPC	$59	$69
Arthur Teaches Trouble NEW!	$29	$49
Barney Bear Goes to School	$25	$29
Beauty and the Beast MPC	$15	$19
Britannica's Family Choice	$29	$39
CD StoryTime (3 Popular Titles)	$16	$19
Family Education Coll (20) NEW!	$29	$39
Gofferwinkle's Adventure DOS	$35	$39
McMillan's Children's Dict. MPC	$39	$49
Mixed Up Mother Goose MPC	$19	$29
Just Grandma & Me MPC	$39	$39
PuttPutt Joins the Parade NEW!	$49	$59
Talking Jungle Safari for Kids!	$45	$49
White Horse Child (EBook) MPC	$25	$29

Lifetime Discount for Purchasing a Drive From MPS!
Some Titles are Restricted to At time of Purchase. Call for Details!

*With Drive (Red Column Prices) are With Purchase of A CD-ROM Drive ^Without Drive Column Pricing can be Purchased Separately Call for Other Titles not Listed.

THIS MONTH'S SPECIALS!

USIT 386 SX-20 NOTEBOOK
386SX-20,2mb Ram,80mb HD, FAX/MODEM, BitFax, BitCom,DOS 5.0, Prodigy. Limited Qty **$899**

PHILLIPS CM205 DRIVE $229
SPECIAL OFFER! MPC COMPLIANT DRIVE!
FAST 375ms Avg. Access, 150kb/sec Trans, 64kb, Complete Kit

MEDIA-V CAPTURE BOARD $149
BLOW OUT! Real-Time Full Motion Display, 12-bit Image Capture

TP 386SX-25 80MB HD $989
Total Peripherals NOTEBOOK 1MB Ram, 80MB HardDrive

ANYTHING ELSE WE GOT WOULD BE HERE

AUDIO/VIDEO CARDS, MIDI, SPEAKERS & MORE	
AudioPort for Portable PC Sound FM Synthesis, Digital Audio	$146
Cardinal SoundVision, 5-in-1 Board, SVGA, 16bit, SCSI, MIDI	$209
Creative Labs Video Blaster - Capture, Graphics, Overlay Brd	$369
Labtec Speakers Starting from $19, CS-550, SS-200, CS-180	CALL
MediaVision MIDI Mate Breakout Box for Pro Audio Cards	$55
MediaVision ProAudio Spectrum 16 Sound Card (Full Retail)	$199
MediaVision ProAudio Spectrum Plus Card OEM SCSI, 44khz	$139
Microsoft Windows Sound System - Headphones, Mic & More	$189
Sound Blaster ASP 16 - 16-bit Adv. Sig. Proc. Chip for Comp.	$279
MRS-01 128 Inst. Ensoniq, 12-bit, 44khz, SCSI (Tosh Drvrs)	$199
Pro Movie Spectrum - Capture S-VHS, w/RS422 Serial Port	$299

CD-ROM DRIVES, DRIVERS, & AUDIO CABLE KITS	
MediaVision CD-ROM Driver Kit (Int.) Texel,Tosh,Sony,Nec	$29
MediaVision CD-ROM Driver Kit for All External SCSI Drives	$49
Sony CDU-31A Drive MPC, XA Mode 2, PhotoCD, w/Interface	$259
Sony CDU-510 CD-ROM Drive 500ms, 150kb/sec, w/Interface	$189
Panasonic CR-522 OEM Drive MPC Compliant w/Interface	$259
Mitsumi CRMR CD-ROM Drive MPC Compliant,350ms,150	$209

SCSI HOST ADAPTER CARDS & OTHERS	
Adaptec 1542 SCSI Master w/EZ-SCSI CDR Drv, OS/2, NT	$269
Adaptec 1522 SCSI Directn w/EZ-SCSI CDR Drv, OS/2, NT	$249
Future Domain TMC 850 8-bit Card with Toshiba 3401 Drvr	$80
Trantor T130 Card w/Univ'l CDR Drvrs, Tape, MusicBox & ...	$85
Trantor T348 Mini SCSI Plus 300kb Trans. Rate for Laptops	$159

1 2 3
Hassle-Free
Installation

1. Bring in your computer,Just your box,that's all we need
2. Bother our Sales Staff, or Tell Us what your Kit will Be...
3. And our Techs will help You install the new Kit for Free!

1 2 3
Hassle-Free
Installation

MPS MULTIMEDIA, INC.
MULTIMEDIA PRODUCTION SYSTEMS
342 WEST PORTAL AVE., SAN FRANCISCO, CALIFORNIA 94127

VISA MasterCard

415.731.4MPS
4 1 5 7 3 1 4 6 7 7
FAX 415.731.1217
OPEN MON-FRI 9:30-6:30, SAT 10:00-5:00

19th AVE.
15th AVE.
WEST PORTAL AVE.
PORTOLA DR.
N
SLOAT
ST. FRANCIS BLVD.
JUNIPERO SERRA BLVD.

READ THIS!: Credit Same As Cash Prices. No Surcharge. VISA, MC, Checks accepted. All returns subject to approval. 15% Restocking Fee. Software Sales are Final. S&H non refundable. Mail Orders: Add $3.00/box plus Shipping. C.O.D.'s add $4.50. Not responsible for typos. All Trademarks & Logos Acknowledged.

an Arlington, Virginia-based conferencing system running Caucus software on a 486-based UNIX microcomputer.

NetJam, run by Craig Latta in Berkeley, is a computer network that allows people all over the world to collaborate on musical compositions. Participants send Musical Instrument Digital Interface (MIDI) and other data files to each other via electronic mail, edit them, and resend them. To join NetJam, Latta says, "all that are required are an interest in music, access to MIDI-compatible or other supported equipment, email, compression facilities, and access to the Internet." An introductory NetJam guide, primarily technical info for people interested in participating, is available via ftp as anonymous@xcf.berkeley.edu:misc/netjam/doc/guide, or via email to netjam-request@xcf.berkeley.edu with the subject "request for info."

Global in nature, online arts communities and services are changing the art scene from local ("New York Art," "California Art") to international. System X, for instance, is an online media art facility in Sydney, Australia, and has been running continuously since January 1990. "System X is designed as a narrative structure providing context but not content: the content is produced by a group of artists who work together to produce an alternative storyline to the narrative of interaction in their daily lives. It is the only project of its kind in Australia," says systems designer, Scot Art.

THE FUTURE

In online environments, publishers, creators, and audiences can communicate interactively. Work is rapidly and inexpensively published. However, there are drawbacks. Because of system limitations, online works usually have to be programmed in simple structures. Some users find modems, communications software, and online operating systems difficult and expensive to use. At present, writers do not receive royalties.

In the future, standardization and intelligent software will simplify the telecommunications process. Publishing systems modeled on database vendors (BRS, DIALOG, etc.) may be set up. Users may pay small amounts to access online literature. Writers may receive royalties. It is possible that systems like Prodigy, where online entertainment induces users to use shopping services, may eventually support literature and art. Ideally, electronic publishing will be based on operating systems, such as UNIX, that port between personal computers and online systems.

"The catch," says Anna Couey, "is that computer networks are not accessible to everyone. Cyberspace is being colonized primarily by countries with access to a high level of technology." As Craig Harris, the executive director of Leonardo says, "We have had to think a lot about bridging some of the gaps between connected and not-connected communities, between more and less formal communication styles, between editorially focused and more dialog-oriented structures. We take the issue of communication among people from different cultures with different levels of access to electronic communication (from complete to none) extremely seriously." ■

ESOURCES:

S.T., Leonardo
ardo Electronic News
Lewis, Electronic
jects Director
eonardo, The
national Society
e Arts, Sciences
d Technology
South Van Ness Ave.
Francisco, CA 94110
15)431-7414
Email:
amet.berkeley.edu>

neArt Forum
Brown, Editor
sissippi State
ersity, National
nce Foundation
eering Research
Center for
putational Field
Simulation
O Box 6176
ssippi State, MS
9762-6176
Email:
@erc.msstate.edu>

of Whispers: A
rtual Opera
ian Andreas
972 Otis St.
rkley, CA 94703
Email:
@well.sf.ca.us>

MCI Mail
19th St. NW,
Suite 700
gton, DC 20036
0-444-6245

nse8 Corp.
Bridgeway, Box 477
lito, CA 94956

he WELL
ate Five Rd.
lito, CA 94965
32-4335 (voice)
5)332-6106 (modem)

he World
ftware Tool
d Die, Inc.
Beacon St.
ine, MA 02146
7)739-0202

Unix Software Success — Innovation in Progress

Presented by the Software Entrepreneurs' Forum
A One Day — Two Track Seminar

Co-Sponsors
UniForum Association
X-Open Ltd.
MicroTimes
Smith & Shows

Thursday, April 15
Santa Clara Marriott — Santa Clara, California

Introducing *Unix Software Success* — SEF's first Unix seminar for software developers, marketers, and entrepreneurs who want to learn the secrets for successfully developing and marketing Unix software. We think of this seminar as *Innovation in Progress* — a place where ideas flow.

This one-day seminar features a marketing track and a technical track. Each offers presentations from internationally acknowledged Unix innovaters — **Joel Appelbaum** (Univel), **Tony Wasserman** (IDE), **Doug Michels** (SCO), **Stephen Bourne** (Sun Microsystems), **Michael Tieman** (Cygnus Support) and many others.

WHY ATTEND?

Developers, programmers, and marketers will benefit from every aspect of this seminar. You can count on:

- ***An "open" seminar*** — SEF seminars are unaffiliated with a particular platform or operating system
- ***Firsthand experience*** — Our speakers are all seasoned entrepreneurs and industry experts
- ***New ideas*** — See the industry from marketing, technical, and entrepreneurial perspectives
- ***A friendly environment*** — You'll make new friends and valuable industry contacts
- ***A unique opportunity*** — Show your products and services at our Cocktail Reception/Product Showcase
- ***An extraordinarily affordable price*** — SEF members and UniForum individual members can attend this full day event for as little as $175!

AGENDA

Joel Appelbaum, *President, CEO*, Univel *The Future of Unix on the Desktop*	
Managing Software Development Inception to Beta	An Entrepreneurial Case Study
Developing Multiplatform Products	Marketing Communications
Tony Wasserman, *President, CEO*, IDE *Reinventing Your Product — The Second Generation*	
Making Free Software Affordable	Building a US Sales Department
International Technical Issues	International Marketing Issues
Doug Michels, *Executive Vice President, CTO*, SCO *The Great Open Systems Debate*	

REGISTER TODAY!

Space is limited. Call the Software Entrepreneurs' Forum at 415/854-7219 for an application form. SEF members and individual UniForum members: $175; non-members: $300. You may become a member of either organization when you register. Registration closes on April 5, 1993!

Software Entrepreneurs' Forum
P.O. Box 61031 • Palo Alto, CA 94306

Call the Quality Leader

5 Year Labor & 1 Year Parts Warranty
We Use The Finest Made in USA Motherboards

FREE 2-Hour Software Installation on all systems.
FREE labor on upgrades on all of our systems for 5 years

Super 486DX-33 w/256K Cache EISA-VESA Local Bus

8MB RAM/SVGA/200MB EISA HD System

- Made in USA 486DX-33/256K EISA VESA Local Bus Motherboard
- 8MB RAM (Expandable to 256MB)
- 256K Cache (Expandable to 1MB)
- UltraStor 24F EISA SCSI Controller Card
- 213 MB Maxtor SCSI 14ms Hard Drive
- Diamond Stealth/24 Local Bus SVGA Card w/1MB
- Viewsonic 6E 14" Non-Interlaced SVGA Monitor (1024x768 w/.28mm Dot Pitch)
- Teac 1.2MB 5.25" Floppy Drive
- Teac 1.44MB 3.5" Floppy Drive
- 2 Serial, 1 Parallel, I/O Ports
- Maxiswitch or Focus 2001 101-key Keyboard
- GT-300 Deluxe Full Tower Case w/300Watt & Dual Fans P.S.
- Logitech 3-Button Mouse
- MS-DOS 5.0 w/Manuals
- Windows 3.1 w/Manuals

486DX-50/256K $2995
486DX2-66/256K $3095

$2795

Micronics 66MHz VESA Local Bus ATI Ultra VESA Local Bus Video

8MB RAM/17" SVGA/200MB Local Bus HD System
32 Million WinMarks!
Why buy proprietary when you get industry standard VESA? Future compatibility with all manufacturers plus blazing local bus speed!

PARADINE Bus Master Three Local

- Micronics VESA Local Bus 486DX2-66/256K Motherboard
- Socket for Intel's Overdrive Chip
- One Additional Available VESA LB Slot
- 8 MB RAM (Expandable to 64MB Onboard)
- Built in VESA Local Bus 2FD/2HD IDE Controller Card
- 213MB Maxtor 14ms IDE Hard Drive
- ATI Ultra Plus VESA Local Bus Mach 32 GUI (Windows) Accelerator SVGA Card w/1MB VRAM
- Viewsonic 7 17" Non-Interlaced SVGA Monitor (1280x1024 w/.28mm Dot Pitch)
- Teac 1.2MB 5.25" Floppy Drive
- Teac 1.44MB 3.5" Floppy Drive
- 2 Serial, 1 Parallel, I/O Ports
- Northgate OMNI NI 101 Keyboard
- GT-300 Deluxe Full Tower w/Dual Fan & 300 Watt PS
- DOS 5.0 w/Manuals
- Windows 3.1 w/Manuals
- Logitech 3-Button Mouseman

486DX-33 System $3395

$3675

Micronics VESA Local Bus

The First True VESA Compatible Local Bus Syster

Why buy proprietary when you can get industry standard VESA?
Future compatibility with all manufacturers plus blazing local bus spee
Plus: 486SX Motherboard is FULLY upgradable to the new 486DX2

PARADINE Bus Master Three Local

- Micronics VESA Local Bus 486SX-25/256K (Upgradable to 486DX2-
- 4MB Ram (Expandable to 64MB) 8MB add $160
- Built-in Local Bus IDE Controller Card
- 130MB Maxtor IDE Hard Drive 200MB add $150
- Micronics VESA Local Bus ET-4000 Video w/1MB
- Viewsonic 6E 14" Non-Interlaced SVGA Monitor (1024x768 w/.28mm DP)
- Teac 1.2MB 5.25" Floppy Drive
- Teac 1.44MB 3.5" Floppy Drive
- 2 Serial, 1 Parallel, I/O Card
- Maxiswitch 101 Keyboard
- GT-300 Deluxe Full Tower w/Dual Fan & 300 Watt PS
- DOS 5.0 w/Manuals
- Windows 3.1 w/Manuals
- Logitech Dexxa 3-Button Mouse

486DX-33....$2245
486DX2-50...$2495 486DX2-66...$2645

$189

486-50/33MHz w/256K Cache

120MB Hard Drive–Super VGA System
DOS 5.0 & Windows 3.1 included

- Intel 486 CPU, Made in USA Motherboard
- 4MB (expandable to 64 MB) - 8MB add $160
- 120MB Conner or Maxtor Hard Drive - 200MB add $150
- Orchid Pro IIs w/1MB & Sierra
- Viewsonic 6E non-interlaced Super VGA Monitor (1024x768 w/.28 Dot Pitch)
- Teac 1.44 MB 3.55" Floppy Drive
- Teac 1.2 MB 5.25" Floppy Drive
- 2 Serial, 1 Parallel, 1 Game port, I/O Card
- Maxiswitch or Focus 2001 101-Key Enhanced Keyboard
- Full Tower Case w/250Watt Power Supply
- Logitech Dexxa Mouse w/Pad
- Windows 3.1 w/Manuals
- DOS 5.0 w/Manuals
- 2 Year Warranty on Motherboard

$1995/1795

NEW Orchid 50MHz VESA Local Bus System

4MB RAM/14" SVGA/200MB Local Bus HD System
27 Million WinMarks Paradine Bus Master 2 Local

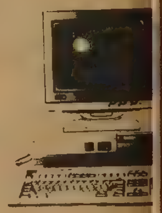
- Orchid VESA Local Bus 486DX-33/256K Motherboard
- Intel 486DX-50 CPU w/Built-In Math Co-processor
- 4MB RAM (expandable to 32 MB on board)
- Orchid VESA Local Bus 2FD/2HD IDE Controller Card
- 213MB Maxtor 14ms IDE Hard Drive
- Diamond Stealth/24 VESA Local Bus GUI (Windows) Accelerator SVGA Card w/1MB
- Viewsonic 6E 14" Non-Interlaced SVGA Monitor
- Teac 1.2 MB 5.25" Floppy Drive
- Teac 1.44 MB 3.55" Floppy Drive
- 2 Serial, 1 Parallel, 1 Game I/O Card
- Maxiswitch or Focus 2001 101-Key Enhanced Keyboard
- Full Tower Case w/250Watt PS
- DOS 5.0 w/Manuals
- Windows 3.1 w/Manuals
- Logitech Dexxa 3-Button Mouse

$2295

486SX-25MHz w/64K Cache

120MB Hard Drive—Super VGA Syste
DOS 5.0 included

- Intel CPU, Made in USA Motherboard
- 4MB RAM (expandable to 64MB)
- 120MB Conner or Maxtor IDE HD
- Orchid Pro IIs w/1MB & Sierra Ramdac
- Viewsonic 4E Super VGA Monitor (1024x768 w/.28 Dot Pitch)
- Teac 1.44 MB 3.5" FDD
- Teac 1.2 MB 5.25" FDD
- 2 Serial, 1 Parallel, 1 Game port, I/O Card
- Maxiswitch or Focus 2001 101-Key Enhanced Keyboard
- Desk Top or Tower Case w/Power Supply
- 3-Button Logitech Dexxa Mouse w/Pad
- DOS 5.0 w/Manuals
- Windows 3.1 w/Manuals
- 2 Year Warranty on Motherboard Micronics Motherboard.....add $200



386-33MHz with 64K Cache System $1395

$14

System Upgrades and Add-on Options

Hard Drives

240 MB Quantum IDE	$495
130 MB Maxtor IDE	255
200 MB Conner IDE	385
200 MB Maxtor IDE	385
120 MB Colorado Tape Backup	205
250 MB Colorado Tape Backup	255
Creative Labs Multi-media Kit w/Sound Blaster Pro, 4 CD Software Bundle Creative Labs CD-ROM Drive, Windows 3.1 w/Multi-media Extensions v.1.0	535

Monitors

Call for pricing on complete Micronics systems

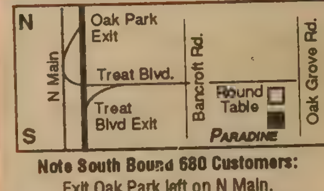
Viewsonic 6FS	Non-Interlaced 1024x768 15" .28dp	$625
Viewsonic 5+	Non-Interlaced 1024x768 14" .25dp	585
Viewsonic 6	Non-Interlaced 1024x768 14" .28dp	375
Sony 1604S	17" 1024x768	1095
Viewsonic 7	17" 1280x1024	1045
Viewsonic 8	20" 1280x1024	1695
NEC 4FG	Non-Interlaced 1024x768 15"	795
NEC 5FG	Non-Interlaced 1280x1024 17"	1425
MAG MX15F	Non-Interlaced 15" 1024x768 .28dp	625

VGA Cards

Diamond Speed Star 24X	
Orchid F1280/24 1MB w/16.7 Million Colors	
Orchid Pro IIs w/1 MB	
Logitech Portable Trackball or Notebooks	Spe

Modems

US Robotics Sportster 14400 ext. fax/modem
US Robotics Sportster 14400 int. fax/modem
Zoltrix 14400 int. fax/modem
Zoltrix 9600/2400 int. fax/modem



Note South Bound 680 Customers:
Exit Oak Park left on N Main,
left onto Treat Blvd 3 Miles from 680

PCS
PARADINE

PARADINE
COMPUTER SYSTEMS

Oak Grove Plaza Annex • 2958 Treat Blvd., Suite A • Concord, CA 94518

Hours:
Mon-Fri 9:30-7:00
Sat 10:00-5:00

No Surcharge

Call the Quality Lea
(510) 825-60
Fax: (510) 825-59
BBS: (510) 825-09

Leasing/Financing Availabl
Prices subject to change without not
Not responsible for typographical err

Dear Reader,

Welcome to *MicroTimes*'s new section, MultiMedia & beyond. We need your help! In order to meet the increasing needs of our readers for the highest quality editorial and information possible, we are asking you to participate in our reader survey.

Please take the time to answer the questions below and fax back your response to (510) 934-7351. As an added bonus for your participation, we will place your name in a drawing for a FREE first-class subscription to *MicroTimes* upon receipt of your completed questionaire.

Multi & Media beyond

1. What is your organization's primary business activity at your location?
☐ Aerospace
☐ Government
☐ Education
☐ Architecture, Engineering
☐ Communications: Advertising, Graphic Arts, Marketing, Public Relations, etc.
☐ Media: Broadcast, Film, Television, Publishing, etc.
☐ Manufacturing (computer, multimedia related): Computer/audio/video/audiovisual hardware, software, peripherals, etc.
☐ Manufacturing (other) ____________
☐ Dealer, retailer, distributor (other) ____________
☐ Accounting, Banking, Finance, Insurance, Real Estate
☐ Health, Medical, Legal
☐ Agriculture, Mining, Construction, Oil, Transportation, Utilities
☐ Research and Development
☐ Computer/multimedia contracting, consulting
☐ Consulting (other) ____________
☐ Other businesses and services ____________
☐ Other (please specify) ____________

2. Title: (Select one only.)
☐ Chairman/President/ Owner/Partner
☐ Vice President/General Manager
☐ Director/Department Manager
☐ Project Manager/Group Leader
☐ Creative Director/Designer/Producer
☐ Micro Manager/Coordinator/Specialist
☐ Network/Datacomm./Telecom Manager
☐ Manager/Supervisor (not listed above)
☐ Programmer/Analyst
☐ Architect/Engineer
☐ Specialist/Technician
☐ Scientist
☐ Educator
☐ Professional
☐ Consultant
☐ Representative
☐ Other (please specify) ____________

3. Deparment/Function: (Select one only.)
☐ Engineering/Technical
☐ MIS/DP
☐ Manufacturing/Operations/Production
☐ Administration/Management/Human Resources
☐ Accounting/Finance
☐ Advertising/Communications/Public Relations/Promotions
☐ Sales/Marketing
☐ Industrial design
☐ Corporate training
☐ Education
☐ Science/Research & Development
☐ Consulting
☐ Other (please specify) ____________

. Which of the following operating systems are in se at this entire location? (Select all that apply.)

W Operating Systems:
☐ DOS
☐ Windows
☐ OS/2
☐ Macintosh
☐ UNIX
☐ Other (please specify) ____________

AN Operating Systems:
☐ Novell Netware
☐ Appleshare
☐ LAN Manager
☐ NFS
☐ Banyan VINES
☐ Other (please specify) ____________

5. Which of the following types of computers are used by you or members of your department or work group, or household. (Select all that apply.)

	Company	Household
IBM/Compatible 286 PC	☐	☐
IBM/Compatible 386 PC	☐	☐
IBM/Compatible 486 PC	☐	☐
IBM/Compatible Laptop/Portable	☐	☐
Other IBM Compatibles	☐	☐
68040 Macintosh	☐	☐
68030 Macintosh IIfx, IIci, IIcx, IIx, IIsi	☐	☐
68020 Macintosh II/LC	☐	☐
Macintosh Portable PowerBook	☐	☐
68030 Macintosh SE/30	☐	☐
Other Macintosh	☐	☐
Amiga	☐	☐
Workstation (HP, Sun, DEC, Silicon Graphics, NeXT, etc.)	☐	☐
Other Platform (please specify) ____________	☐	☐

7. In which ways are you personally involved in your organization's decision to purchase these products? (Select all that apply.)

A. Multimedia-related hardware and peripherals
☐ Determine needs/features
☐ Evaluate brands
☐ Specify/recommend brands
☐ Specify/recommend vendors/suppliers
☐ Authorize the purchase
☐ Other (please specify) ____________

B. Multimedia-related software
☐ Determine needs/features
☐ Evaluate brands
☐ Specify/recommend brands
☐ Specify/recommend vendors/suppliers
☐ Authorize the purchase
☐ Other (please specify) ____________

6. Please indicate which of the following products you plan to purchase for household or company use? (Select all that apply.)

Multimedia-related Hardware /Peripherals	Company	Household
IBM/Compatible PCs	☐	☐
Macintoshes	☐	☐
Amigas	☐	☐
Workstations	☐	☐
Color monitors	☐	☐
Presentation monitors	☐	☐
Multimedia upgrade kits	☐	☐
Audio boards	☐	☐
Graphics boards	☐	☐
Digital/Analog video boards	☐	☐
MIDI sequencers/synthesizers	☐	☐
LCD display panels	☐	☐
Desktop scanners	☐	☐
Mice/joysticks/input tablets	☐	☐
Color printers	☐	☐
CD-ROM drives	☐	☐
Laser disc players	☐	☐
VCRs and VCR controllers	☐	☐
Video cameras	☐	☐
Laser printers	☐	☐
Color proofers	☐	☐
High-resolution scanners	☐	☐
Color scanners	☐	☐
Storage devices	☐	☐
Networking systems	☐	☐
Supplies/accessories	☐	☐
Color Copiers	☐	☐
Other (please specify) ____________	☐	☐

Multimedia-Related Software	Company	Household
Authoring	☐	☐
Music composition/editing	☐	☐
Sound editing	☐	☐
2-D/3-D rendering/modeling	☐	☐
Animation	☐	☐
Desktop publishing	☐	☐
Draw/paint/image editing	☐	☐
Fonts	☐	☐
Presentation graphics	☐	☐
Clip art	☐	☐
Clip music	☐	☐
ip video/animation	☐	☐
Education application/titles	☐	☐
Electronic reference	☐	☐
Other (please specify) ____________	☐	☐

8. During the next 12 months, will you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
☐ $1,000,000 or more
☐ $500,000 to $999,999
☐ $250,000 to $499,999
☐ $100,000 to $249,999
☐ $50,000 to $99,999
☐ $25,000 to $49,999
☐ $10,000 to $24,999
☐ $5,000 to $9,999
☐ Less than $5,000
☐ None of these

9. In the last 12 months, did you specify, recommend, buy, or approve the purchase of multimedia-related hardware, peripherals, software, or services worth: (Select one only.)
☐ $1,000,000 or more
☐ $500,000 to $999,999
☐ $250,000 to $499,999
☐ $100,000 to $249,999
☐ $50,000 to $99,999
☐ $25,000 to $49,999
☐ $10,000 to $24,999
☐ $5,000 to $9,999
☐ Less than $5,000
☐ None of these

10. How many people are employed in your entire organization, including all its branches, subsidiaries, and locations? (Select one only.)
☐ 1000 or more
☐ 500-999
☐ 100-499
☐ 25-99
☐ Less than 25

11. What areas in your company do you see using multimedia? (Select all that apply.)
☐ Training
☐ Product announcements
☐ Corporate presentations
☐ Sales and marketing
☐ Other (please specify) ____________

12. How do you usually buy computer hardware, software, accessories, and supplies?
☐ Through a local retail store
☐ Mail order
☐ Catalog
☐ Direct from manufacturer
☐ Direct from distributor
☐ Other (please specify) ____________

Name: ____________
Address: ____________
City: ____________
State, Zip: ____________
Phone: ____________

Thank you for your participation! Please fax this questionnaire to (510)934-7351.

Continued from page 252

and attend networking. I found in it things I didn't know that I wish I'd found first. I recommend it.

THE INTERNET COMPANION: A BEGINNER'S GUIDE TO GLOBAL NETWORKING

Author: Tracy LaQuey, with Jeanne Ryer; Foreword by Senator Al Gore
Published By: Addison-Wesley
List Price: $10.95
Reviewed By: John S. Quarterman

Despite the title, this is a book about a network, the Internet, not a book about networking technology. It is a popularization of working technology as embodied in the world's largest network of networks (with a million hosts and seven million users). For the most part, it makes the necessary technical jargon transparent without resorting to neologisms or oversimplification. It even quotes the *New Hacker's Dictionary* extensively.

This book concentrates on what you can use the network for, which is a welcome change from the excessive concentration on specific networking services often found in network books. It does emphasize the most common Internet applications—telnet, ftp, and mail—but with examples of what they can be used for, not just bare statements of their technical capabilities. The general organization of the book is according to broad topics such as communicating with people and getting connected, which is as it should be.

The book makes many important points, such as that the Internet is not all one speed, since it accomodates many kinds of networking technology; if you want more speed, you can probably get it, but you may have to pay more. The book explores K–12 education, focusing on TENET, the Texas Education Network, as an example. And it examines the increasing business use of the Internet, giving due weight to ANS, CIX, and even new projects like MCC's EInet (Enterprise Integration Network). Luckily, the book does not shy away from mentioning recreational uses of the Internet: it's not just for work; it's for everything.

If you want to know what the Internet is, what it's good for, and how you can get connected to it, buy this book. (Addison-Wesley Publishing Co., 1 Jacob Way, Reading, MA 01867. 617/944-3700)

PCs FROM SCRATCH: DESIGNING AND ASSEMBLING YOUR OWN CUSTOM PC

Written By: Corey Sandler, Tom Badgett, and Wade Stallings
Published By: Bantam Computer Books
List Price: $22.95
Reviewed By: Woody Liswood

Do you want a PC? Do you feel comfortable with a screwdriver in your hand? And, do you want to save money? If so, this book is for you: it guides you step by step through the process of determining your needs, finding the correct equipment in the mail order environment, and assembling everything into the computer of your dreams.

THE PC LIBRARY
PCs
FROM SCRATCH
DESIGNING AND ASSEMBLING YOUR OWN CUSTOM PC

There are really two main reasons for assembling a computer from scratch. First is financial—you really don't have the money. Doing everything on your own will save you a few dollars. The book says at least 20%. However, given the falling costs of computers you may not save that much. The second reason is that you cannot find the exact computer you need so you must build your own computer.

There is also the satisfaction of doing something yourself. When you assemble a computer that fits your needs, you will have had to determine what those needs really are, looked in the marketplace to determine what parts will fill those needs, talked with a variety of sources to see if the parts you want to purchase will work with each other, and then you still must assemble and get working all of those parts.

There are lots of illustrations, and a variety of pictures of cards and boards. If you are expecting an engineer's report on a wide variety of products, though, this is not the book for you. It is written for the novice PC user and does not go into deep technical detail.

The book can't do your work for you. Nevertheless, get this book, do your homework, work methodically, and have fun. Plus, remember to make certain that you can return anything that doesn't immediately work. (Bantam Computer Books, 666 Fifth Ave., New York, NY 10103. 212/765-6500) ■

CALL US FIRST!
BEST PRICES AROUND

HARD DISK DRIVES
• Western Digital • Maxtor • Conner
170, 200, 250, 340 & 425 MB

• EPROMS • CPU's
• MEMORY • CRYSTAL OSCILLATORS

CALL FOR LATEST PRICING!

OEM AND BULK PRICING AVAILABLE

MICROLINK
(408) 263-7501
FAX: (408) 263-7679
743 AMES AVE., MILPITAS, CA 95035

San Francisco Office:
5856 Geary Blvd.
San Francisco, CA 94121
Tel: (415) 751-6046
or (415) 751-6048
Fax: (415) 751-4586

Atman
COMPUTER, INC.

Art

Hard Disks on Sale!

KaLok 120MB Hard Disk (18ms)	$245
Conner 170MB Hard Disk (15ms)	$335
Maxtor 213MB Hard Disk (15ms)	$415

• WE DO REPAIR & UPGRADE SERVICE ON IBM & COMPATIBLES •

No Appointment Necessary, Fast Turn-around, Courteous Service, Experienced Technicians

NEW Multimedia Technology Has Arrived!
Photo CD Multimedia Deluxe...$1550
486DX 33MHz System w/128K Cache
w/Conner 170MB Fast Hard Disk (15ms)

- Mini Tower Case w/ 230 Watts Power Supply
- Cyrix 486DLC 33MHz CPU (Upgradable)
- 128kb External Cache Memory
- 4MB RAM Memory
- 1.2 MB Floppy Drive (5.25" Size)
- 1.44 MB Floppy Drive (3.50" Size)
- Conner 170MB Hard Disk (15ms)
- Super VGA Card w/1MB Ram
- 14" Super VGA Color Monitor (1024x768 Res., 0.28 Dot Pitch)
- 101 Key Enhanced Keyboard
- MicroSoft Serial Compatible Mouse

Multimedia Deluxe Kit Includes:

Stereo Sound Blaster Pro Card
Creative Labs Photo CD-ROM Drive
Magnetically Shielded Speaker (Model CT-38)
Software: Encyclopedia
(from Software Toolwork)
Animals! (lots of real sound & photos)
Lemmings (action games for family)

Multimedia Discovery Deluxe Kit $445
Sound Blaster Stereo Pro Card • Creative Labs Photo CD ROM Drive
Magnetically Shielded Speaker (Model CT-38 Stereo)
3 CD Titles included: Lemmings, Animals!, Toolworks Encyclopedia

Multimedia Deluxe Upgrade Kit Add $100
Same as Deluxe Kit: Plus 5 CD Titles:
Microphone
Software Bundle:
Secret Weapons of the Luftwaffe • Monkey Island • Loom
Sherlock Holmes Vol. II • Carmen San Diego & Grandma & Me

Sound Blaster Pro w/3 CD Titles $165
Lemmings, Indy 500, Toolworks Encyclopedia with the latest Sound Blaster Software like: Wave Studio, Talking Scheduler and more...

Panasonic CD Rom Drive $300
Mitsumi CD Rom Drive $215
Video Blaster w/Video for Windows Software .. $360

• IBM PC Hardware and Accelerator •

Case & Power Supply

Mini Tower Case w/220 Watts PS	$60
Medium Tower Case w/220 Watts PS	$85
Full Size Tower w/250 Watts PS.	$105
Deluxe Full Tower & 250 Watts PS	$165
Super Tower w/300 Watt PS.	$210
Baby AT Desktop w/220 Watt PS	$75
Slim Tower Case w/135 Watt PS	$80

Video Cards

Accumos VGA Card w/256K.	$35
1M Super VGA Card.	$65
24 Bit Accumos Win. Accel. w/1M.	$85
Genoa VESA Local Bus SVGA.	$165
Diamond Stealth (VESA Local Bus)	$235

Monitors

14" Flat Screen Amber Mono	$99
14" VGA Color Monitor (.39)	$225
14" Super VGA Color Monitor (.28)	$255
15" Flat Screen SVGA Color Monitor (Hitachi Picture Tube, Digital Control)	$450
17" Super VGA Color Monitor (Flat Screen, Multisync)	$680
14" Non-Interlaced SVGA Monitor	$285

Hard Disk

40MB Hard Disk	$160
KaLoK 80MB (18ms)	$180
KaLoK 105MB (18ms)	$200
Seagate 130MB (15ms)	$235
Conner 170MB (15ms)	$260
WD 212MB (13ms)	$320
WD 255MB (13ms)	$365
Quantum 240MB (13ms)	$360
WD 340MB (13ms)	$480

Zoltrix Modem

2400/9600 Send Fax Modem.	$39
2400/9600 Send & Rec. Fax Modem w/BitFax for Windows Software	$75
14400/9600 Send & Rec. Fax Modem (V.32 Bis, & V.42 Bis Error Correct).	$200

• 5 Year Labor (in Store Service) & 1 Year Parts Warranty on All Systems •

Basic System Includes: Mini Tower Case w/220 Watts Power Supply, 1.2MB or 1.44MB Floppy Drive, IDE (2 Floppy/2 Hard disk) Controller, 2 Serial, 1 Parallel, 1 Game Ports, 101 Key Enhanced Keyboard.

System:	386SX 33MHz	386DX 25MHz	386DX 40MHz w/64K Cache	486SX 25MHz w/64K Cache	Cyrix 486DX 33MHz w/64K Cache	486DX 33MHz w/64K Cache	486DX2 50MHz w/256K Cache	486DX 50MHz w/256K Cache	VESA Local Bus 486DX 33MHz w/256K Cache w/32 Bit Win Accelerator	VESA Local Bus 486DX 50MHz w/256K Cache w/32 Bit Win Accelerator	EISA & VESA 486DX 33MHz w/256K Cache w/32 Bit Win Accelerator	EISA & VESA 486DX2-66MHz w/256K Cache w/32 Bit Win Accelerator
Main Board & CPU	$99	$109	$170	$228	$240	$428	$577	$622	$482	$650	$549	$800
Basic System:	$250	265	315	379	390	560	700	750	610	777	680	930
Basic System: +4MB RAM, +80MB Hard Disk + VGA Color Monitor	$780	798	850	900	900	1100	1250	1290	1245	1406	1306	1570
Basic System: +4MB RAM, + 1.2MB & 1.44 Floppy Drive + 105MB Hard Disk +SVGA (1M) (1024 x 786 Res. 0.28 Dot) SVGA Color Monitor	$880	890	935	996	1000	1200	1350	1400	1333	1500	1400	1650
Basic System: 4MB RAM +1.2M &1.44 Floppy Drive, +130MB Hard Disk, Super VGA (1M) & Monitor (1024x768 Res. 0.28 Dot, 1M RAM))	$920	935	975	1033	1050	1222	1400	1440	1355	1540	1440	1700
Basic System: 4MB RAM +1.2M &1.44 Floppy Drive, +170MB Hard Disk, Super VGA (1M) & Monitor (1024x768 Res. 0.28 Dot, 1M RAM))	$950	965	1025	1070	1088	1275	1440	1480	1375	1570	1480	1740
Basic System: 4MB RAM +1.2M &1.44 Floppy Drive, +210MB Hard Disk, Super VGA (1M) & Monitor (1024x768 Res. 0.28 Dot, 1M RAM))	$1025	1040	1095	1150	1155	1340	1485	1555	1444	1620	1555	1818
Basic System: 4MB RAM +1.2M &1.44 Floppy Drive, +245MB Hard Disk, Super VGA (1M) & Monitor (1024x768 Res. 0.28 Dot, 1M RAM))	$1057	1073	1131	1195	1385	1387	1543	1587	1515	1680	1585	1830
Basic System: 4MB RAM +1.2M &1:44 Floppy Drive, +340MB Hard Disk, Super VGA (1M) & Monitor (1024x768 Res. 0.28 Dot, 1M RAM))	$1169	1185	1242	1300	1305	1500	1655	1699	1616	1785	1690	1940

Atman
Systems Corp.

1 year warranty on parts and labor. Walk-in service within1 hour.
Cash prices reflected. Prices subject to change without notice.
Not responsible for typographical errors.

HOURS:
M-F 10am-6pm
Saturday 11am-5pm

VISA
MasterCard
AMERICAN EXPRESS

ADVERTISERS INDEX

For your convenience, here is a list of advertisers by county and city. Please see the advertiser index on page 312 for the page number of the advertisement.

Marin/Solano County

Cotati
Halted Specialities

Mill Valley
Marketpro Shows

Novato
BCSA

San Rafael
Domino Computer Self
  Service Centers
Hi-Q Systems
Whole Earth Access

Vallejo
Domino Computer Self
  Service Center
United Business Marketing

Contra Costa County

Albany
PC Ten

Concord
AIM Computers
Domino Computer Self
  Service Centers
Nordic Computers
R–Computer
Walnut Creek CD-Rom
Whole Earth Access

Lafayette
EFI's Discount Computer

Pleasant Hill
Computown

Pleasanton
Comtek Computer
Domino Computer
Libre Service Computer, Inc.

San Leandro
PC Ten

San Ramon
Domino Computer Self
  Service Centers

Walnut Creek
Advance Computer
Alpha Fine Furniture
Computer Selection
Compu Mart
Fowler's Furniture
Horizon Training
Systems Unlimited

Alameda County

Berkeley
Domino Computer Self
  Service Centers
McTek Systems
MicroLink Data Systems
MicroWorld
Uncle Ralph's
Whole Earth Access
Winners Circle Systems

Dublin
Comtek Computer

El Cerrito
HD Computers
Positive Solutions
Wentek Computers

El Sorbrante
PC Ten

Emeryville
Microtech

Fremont
Bold Data
Deys Engineering
Domino Computer
Digital Media Labs
Elisa Technology
ENCY Systems
ETI
FRY's Electronics
Golden Micro
Herb's Software Clearance Center
J & K Technologies
Jump Micro
King Star Computer
Libre Service Computer, Inc.
Mac Outlet
Micro Distribution Center
Microtech
Milkyway
Norton Technologies
Songtech International
Spire
Strata Remarketing
Sysper Technologies
U Miracle Computer
USM SystemsWorld Net
Microsystems

Hayward
Computerland of Hayward
Domino Computer Self
  Service Centers
Generic Computers
Multi Connection
  Technology (MCT)
Printer Works
ScienTech R&D Inc.

Modesto
Aroma Computer

Newark
Gigabytes

Oakland
Domino Computer
Mercury Computer
MIS Services
PC Professionals

Richmond
Evergreen Computer
Lintek

Santa Clara County

Campbell
Domino Computer Self
  Service Centers

Cupertino
Cupertino Computer
Postal Communications

Milpitas
Bay Computer
Beta Nineties Computer, Inc.
Bozeman Marketing Group
C.B. Memory & Computers
Computer Art Tech
Computown
Domino Computer Self
  Service Centers
Hi-Tech USA
Laitron Computer
Legend Computer
PS Computer
Wedge Technology

San Jose
AMT International
Berlin Technology
Comware
Computerwerx
Domino Computer Self
  Service Centers
EMI International
International Microdevices
Internet Technologies
ISC Computers
JDR Microdevices
Microland
Miracle Computers
NCA Peripherals
Oak Warehouse
Pixel USA
Prestige Computer
RT Computer
Santa Clara Computers Int.
Whole Earth Access
WIT International

Santa Clara
Access Computer
  Technologies
Appro
ASA Computers
Central Computer
C & J Computer
Comtek Computer
Domino Computer Self
  Service Centers
Edimax
Halted Specialities
Hitron Systems
Jemini Electronics
MicroLink Data Systems
Portable Computer Expo
Proven Technology
PSC Computing
Santron Computer
Storage Systems Engineering
Sytech USA
Tanstaafl
Technoland
USM Systems
Wentek Computer

Sunnyvale
ACR Systems
Advance Computer
American Multi Systems
Aroma Computer
ASP Computer Products
Computer Selection
Corporate System Center
Disk Drive Depot
Discount Oak
Domino Computer Self
  Service Centers
FRY's Electronics
Golden Valley Systems
HD Computers
Hi-Q Systems
HKG Computers
HT Electronics
Leopard Microsystems
NCA Peripherals
Network Associates
Pan Pacific Computer Corp.
PC Warehouse
PromoX Systems
Schwab Computer
The Super Link
USM Systems

Santa Cruz County

Capitola
Libre Service Computer, Inc.

San Mateo County

Burlingame
Computer Swap

Corte Madera
Soapbox Software

Foster City
Santron Computer
Selcor

Los Altos
Domino Computer Self
  Service Centers

Millbrae
Domino Computer Self
  Service Centers

Palo Alto
ABS
Comtek Computer
FRY's Electronics
Palo Alto Micro
PC Warehouse
USM Systems

Redwood City
Computer Selection
Hoot Jurdkins

San Bruno
Comtek
PC Warehouse

San Carlos
Belmont Systems, Inc.
Friendly Software
Hi-Tech USA

San Mateo
Libre Service Computer, Inc.
Now Electronics
Santron Computer
Whole Earth Access

San Francisco County

Daly City
Domino Computer Self
  Service Centers

San Francisco
Advance Computer
Altman Computer Inc.
Comart Business Systems, Inc.
The Computer Grocery Store
Compudata
Computer Selection
Computown
Domino Computer Self
  Service Centers
Evernet Education Services
Hoot Jurdkins
Horizon Training
Libre Service Computer, Inc.
Microage of San Francisco
MicroLink Data Systems
MPS Multi Media
Ramcomp
Santron Computer
SF State
Tital Systems
USM Systems
Wells Fargo Bank
Whole Earth Access

South San Francisco
Beta Nineties Computer, Inc.
Comet Microsystems
Fastlink Network Products
Network Innovations
Universal Computer Products
USM Systems

Sacramento County/ Stockton

Sacramento
Computer Leap
Domino Computer Self
  Service Centers
Halted Specialties
HD Computers
Hi-Q Systems
Libre Service Computer, Inc.
Whole Earth Access

Stockton
Hi-Q Systems

Out of State
Commodore Computers
Downsizing Expo
Uniforum

This index is provided as an ad tional service. Although we do best to maintain accuracy, the P lisher does not assume liability errors or ommissions.

THE PRICE LEADER

HP Authorized Dealer HP Authorized Dealer HP Authorized Dealer

HP DeskJet 500/500C Series Printers

- Affordable laser-quality printing
- HP DeskJet 500C allows 300-dpi color printing on plain paper transparencies
- Wide variety of built-in fonts
- Supports leading software applications including Windows 3.0
- 3-year limited warranty

$375/495

HP DeskJet 550C

- Integrated black and color printing w/two ink cartridges
- Fast print speeds for mixed black and color documents
- Three-year limited warranty to underscore outstanding reliabilty
- Six typefaces, 84 selectable fonts for DOS
- Built-in Windows™ installer for easy installation
- 13 Scalable fonts for Windows™
- Supports Windows™ software in both black and color
- Improved grayscale for dramatic black graphics in Windows™
- Quiet operation

$675

FREE $225 Software Training Course with Every System Purchase (Call For Details)

COMPAQ

Authorized Dealer

NOTEBOOKS

Contura 3/20 386-20 84MB HD	$1345
Contura 3/25 386-25 84MB HD	$1559
Contura 3/25C 386-25 Color, 84MB HD	$2175
LTE Lite /25, 386-25 4MB RAM, 84MB / 120MB HD	CALL
LTE Lite /25C, 386-25 4MB RAM, Color, 84MB/120MB HD	CALL
LTE Lite 4/25C, 486-25, 4MB RAM, Color, 120MB/209MB HD	CALL

Every Contura packaged with DOS, Windows, Works for Windows & Trackball Mouse

PC SYSTEMS

Prolinea 3/25s, 386-25, 84MB HD	$910
Prolinea 3/25s 386-25, 120MB HD	$975
Prolinea 4/25s, 486-25, 120MB HD	$1225
Prolinea 4/33, 486-33, 120MB HD	$1575
Prolinea 4/50, 486-50, 120MB HD	$1889
Pagemarq 15 ppm, 3 Trays	$3095
Deskpro 3/25i, 3/33i, 4/33i, 4/66i Deskpro/M 386/33M, 486/33M	Call for Best Prices

Every Prolinea packaged with DOS, Windows & Mouse

COMART

486SX-25 MHz

64K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" monitor
80MB Hard Disk
1 Year Parts & Labor Warranty

$925

486-33 MHz

128K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" monitor
1 Year Parts & Labor Warranty

$999

386SX-25 MHz

1MB RAM, Exp. 16MB, 0 Wait
1-1.2MB Floppy Disk Drive
1:1 Hard & Floppy Disk Controller
Enhanced Keyboard
SVGA Card & 14" VGA Monitor
AT/IO 2 Serial, 1 Parallel
80MB Hard Disk

$799

NO PAYMENTS FOR 90 DAYS

486-50 MHz

128K Cache Memory
1MB RAM Exp. to 32MB
1.2MB Floppy
IDE HD and Floppy Controller
101 Enhanced Keyboard
2 Serial, 1 Parallel
VGA w/512K exp. to 1MB
SVGA 1024 Res .28 14" monitor
1 Year Parts & Labor Warranty

$1149

486-66MHz Available

NOTEBOOKS

AST P.E. 386SX/25 4MB, 60MB HD	Best Price
AST P.E. 386SX/25 4MB, 80MB HD	Best Price
Hyundai NB 386's 40/60MB	Best Price
Toshiba T2200 80MB	Best Price
TI Travelmate 3000 WINSX	Best Price

Call for items not listed

OKIDATA

OKI OK! OKIDATA OK!

OKIDATA

Okidata ML 520	$CALL
Okidata ML 521	CALL
Okidata ML 380	225
Okidata ML 590 Plus	439
Okidata ML 591 Plus	595
Oki LED 400	575
Oki LED 810	1069
Oki LED 830, 8 PPM, Postscript, 2MB	1270
Oki LED 840, 8 PPM, Postscript	1595

"One more reason to buy an Okidata LED Printer $50 Rebate! or FREE fonts, or FREE toner!"

EPSON®

Epson LQ-570	$385
Epson LQ-870	445
Epson LQ-860	575
Epson LQ-1070	389
Epson LQ-1170	639
Epson FX-850	325
Epson FX-1050	399
Action Printer #3250/2250	CALL
ActionLaser II	695

"Authorized Epson Dealer"

HEWLETT PACKARD COMPAQ® EPSON® AST® HYUNDAI IBM

AUTHORIZED DEALER

COMART
COMART BUSINESS SYSTEMS, INC.

843 Howard Street
(Between 4th & 5th)
San Francisco, CA 94103
(415) 896-1765

NATIONWIDE CALL
1-800-3COMART
Fax (415) 896-2582

Store Hours:
Mon Thru Fri 9:00-5:30
Sat 11:00-4:00

VISA MasterCard AMERICAN EXPRESS

*Upon credit approval

ADVERTISERS INDEX

1/4 BACK DATA BACKUP SYSTEMS 200
ACCESS COMPUTER TECHNOLOGIES . 136-152
ACR SYSTEMS 37
ADMIRAL MARKETING 10
ADVANCE COMPUTER SYSTEMS 4,5
AIM COMPUTERS 100
ALPHA FINE COMPUTER FURNITURE .. 222
AMERICAL GROUP 299
AMERICAN MULTI SYSTEMS 7
AMREL TECHNOLOGY 122
AMT INTERNATIONAL 104,105
ANOVA MICROSYSTEMS 98
APPLE EXPO WEST 193
APPRO 241
AROMA TECH, INC. 102,103
ASA COMPUTERS 92-94
ASP COMPUTER PRODUCTS 216
ATMAN COMPUTERS 309
AUTHORIZED TECHNICAL SERVICES .. 293
AUTOMATED BUSINESS SYSTEMS 110
BAY AREA COMPUTERS 24,25
BAY COMPUTER 199
BCSA COMPUTERS 227
BELMONT SYSTEMS, INC. 96,97
BERLIN TECHNOLOGY 26
BETA NINETIES COMPUTER 23
BOLD DATA TECHNOLOGY 18
BOZEMAN MARKETING GROUP INC 248
C.B. MEMORY & COMPUTERS 12
CALCOM PRODUCTS 236
CALIFORNIA MEMORY & COMPONENTS 212
CASE WORLD 253
CALTEC INSTRUMENTS 280
CENTRAL COMPUTER SYSTEMS . 228-230
CERTIFIED NETWORK EDUCATORS 109
COMART BUSINESS SYSTEMS 311
COMET MICRO SYSTEMS 201
COMPU DATA 117
COMPUMART 119
COMPUTER ART 99
COMPUTER SELECTION 53
COMPUTER SWAP 8
COMPUTER WERX 74,75
COMPUTERLAND OF HAYWARD 63
COMPUTOWN 70-73
COMTEK COMPUTERS 282
COMWARE TECHNOLOGY 255
CORPORATE SYSTEMS CENTER 28
CUPERTINO COMPUTER 10
DEYS ENGINEERING 42
DIGITAL MEDIA LABS 301
DINER & ALLIED FILM & VIDEO SERV. 250
DISCOUNT OAK 31
DISK DRIVE DEPOT 3
DOMINO COMPUTERS 50
DOMINO SELF SERVICE CTR 11
EDIMAX COMPUTER COMPANY 123
EFI'S DISCOUNT COMPUTER 117
EMI INTERNATIONAL, INC. 251
ENCY SYSTEMS 217
ETI SYSTEM 296
EVEREX SYSTEMS 109
EVERGREEN COMPUTER INT'L 244-247
EVERNET SYSTEMS, INC. 46
FASTLINK NETWORK PRODUCTS 133
FOWLER FURNITURE 31
FRIENDLY SOFTWARE 295
FRY'S ELECTRONICS 2,157-185,315
GIGABYTES 250
GOLDEN MICRO COMPUTER 43
GOLDEN VALLEY SYSTEMS 289
H D SYSTEMS 218-221
HALTED SPECIALTIES 249
HERB'S DISCOUNT SOFTWARE 224
HI-TECH USA 242,243
HIQUALITY SYSTEMS, INC. 55-58
HITRON SYSTEMS 273
HKG COMPUTERS 235
HOLIDAY INN EXPRESS 240
HOOT JUDKINS 31
HT ELECTRONICS 294
INPUT AUTOMATION 118
INTERNATIONAL MICRO DEVICES 48
INTERNET TECHNOLOGY 252
ISC COMPUTERS 45
J & K TECHNOLOGIES 66
JDR MICRODEVICES 21
JEMINI ELECTRONICS 290,291
JUMP MICROSYSTEMS 69
KINGSTAR COMPUTER 9
LAITRON COMPUTER 273
LEGEND COMPUTER 215
LEOPARD MICROSYSTEMS 223
LIBRE SERVICES COMPUTER, INC. 39
LINTEK COMPUTERS 252
M.A.C. 135
MARKET PRO 258
MCT, MULTI CONNECTION TECH 124
MCTEK SYSTEMS 233
MERCURY COMPUTER 130,131
MICRO DISTRIBUTION CENTER 91
MICROLINK 308
MICROLINK DATA SYSTEMS, INC. 195-197
MICROTECH INTERNATIONAL 120,121
MICROWORLD 297
MILKYWAY COMPUTER 67
MIRACLE COMPUTER 83
MIS SERVICES 78
MONARCH COMPUTERS 258
MPS MULTIMEDIA 304
MULTI MICRO SYSTEMS 79
NCA PERIPHERALS 202-210
NETWORK ASSOCIATES CORP. 155
NETWORK INNOVATIONS 77
NITRONIC CORP 213
NORDIC COMPUTERS 313
NORM DE NARDI ENTERPRISE 269
NOW ELECTRONICS 267
OAK WAREHOUSE 31
PALO ALTO MICRO 216
PAN PACIFIC COMPUTER CORP. 90
PARADINE COMPUTER SYSTEMS 306
PC PROFESSIONALS 115
PC TEN 259
PC WAREHOUSE 108
PIXEL USA COMPUTER 126,127
PORTAL COMMUNICATIONS 62
POSITIVE SOLUTIONS CORP. 302
PRESTIGE COMPUTER 40,41
PRINTER WORKS 32
PROMOX SYSTEMS 257
PROVEN TECHNOLOGY 117
PS COMPUTER CORP. 191
QUARTERDECK OFFICE SYSTEMS 316
R-COMPUTER 225
RAMCOMP 192
ROSS DOVE 109
RT COMPUTER 129
SANTA CLARA COMPUTERS INTL 238
SANTRON COMPUTER TECHNOLOGY 13-17
SCHWAB COMPUTER CENTER 101
SCIENTECH R&D, INC. 225
SELCOR DIRECT 64
SF MICRO 240
SILICON GRAPHICS EXPO 303
SOFTWARE ENTREPREUNERS FORUM 305
SONGTECH INTERNATIONAL, INC. 226
SPIDER GRAPHICS 237
STORAGE SYSTEMS ENGINEERING .. 222
STRATA REMARKETING 60
SUNAR SYSTEMS 200
SYSPER TECHNOLOGY 112
SYSTEMS UNLIMITED 22
SYTECH USA 198
TANSTAAFL MANUFACTURING, INC. .. 281
TECHNOLAND 187
THE SUPER LINK 61
TITAL SYSTEMS 106
UMIRACLE MICROSYSTEMS 49
UNCLE RALPHS 34,35
UNITED BUSINESS MARKETING 262
UNIVERSAL COMPUTER PRODUCTS 95
USM DISTRIBUTORS 260,261
V-COM 285
WALNUT CREEK CDROM 296
WEDGE TECHNOLOGY 239
WELLS FARGO BANK 54
WENTEK COMPUTER 271
WHOLE EARTH ACCESS 84-89
WINNER'S CIRCLE 47
WINNERS ONLY, INC. 31
WIT INTERNATIONAL 190
WORLD-NET MICROSYSTEMS 188

This index is provided as an additional service. Although we do our be to maintain accuracy, the Publisher does not assume liability for err or ommissions.

Lifetime In-Store Labor Warranty 1 Year Warranty On Parts
NEW STORE IN SAN RAMON

THOUSANDS OF SATISFIED CUSTOMERS SAY,

"GO SEE NORDIC"

OVER 17,000 SYSTEMS SOLD!

NORDIC COMPUTERS

GREAT VALUE

486-33 System

Complete System
w/Hard Drive
& Super VGA Monitor

486-33 MHz w/ Cache
4 MB RAM, 70ns
IDE Hard Drive & Controller
Viewsonic 4E SVGA Monitor (.28dp)
Teac 1.2 & 1.44 Floppy Drives
2 Serial, 1 Parallel Port
Maxiswitch or Keytronic Keyboard
Desktop Case
DOS 5.0 w/Manual
Lifetime Labor Warranty, 1 yr. parts

SVGA 120MB	SVGA 245MB	SVGA 340MB
$1569	$1729	$1979

GREAT PRICE

486DX2-66 System

Complete System
w/Hard Drive
& Super VGA Monitor

486DX2-66MHz w/ Cache
4 MB RAM, 70ns
IDE Hard Drive & Controller
Viewsonic 4E SVGA Monitor (.28dp)
Teac 1.2 & 1.44 Floppy Drives
2 Serial, 1 Parallel Port
Maxiswitch or Keytronic Keyboard
Medium Tower Case
DOS 5.0 w/Manual
Lifetime Labor Warranty, 1 yr. parts

SVGA 120MB	SVGA 245MB	SVGA 340MB
$1899	$2059	$2299

Nordic Computers

builds all of its computers from premium quality components. Such as:

TEAC Floppy Drives
Viewsonic Monitors
Maxtor Hard Drives
Conner Hard Drives
Maxiswitch Keyboards
Keytronic Keyboards
Logitech Mouse Products
AMI BIOS, Intel CPU's
UL Approved Power Supplies
FCC Class B Rated

CUSTOM CONFIGURATIONS AVAILABLE — CALL FOR QUOTES

CYRIX 486/40 System

w/Hard Drive & Monitor

40MHz, CYRIX DCL 40 CPU
128K Cache Memory
4 MB RAM, 70ns
IDE Hard Drive
Viewsonic 4E SVGA Monitor
1.2 & 1.44 MB Floppy Drives
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 5.0 with manual
Lifetime Labor Warranty
1 yr. parts

SVGA 105MB	SVGA 170MB	SVGA 200MB
$1409	$1449	$1539

386-33 System

w/Hard Drive & Monitor

33 MHz
64K Cache Memory
4 MB RAM, 70ns
IDE Hard Drive
Super VGA Monitor .28 dp
1.2 & 1.44 MB Drives
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 5.0 with manual
Lifetime Labor Warranty
1 yr. parts

SVGA 80MB	SVGA 120MB	SVGA 170MB
$1249	$1299	$1329

386SX-33 System

w/Hard Drive & Monitor

33 MHz
1 MB RAM
IDE Hard Drive
1.2 MB Floppy Drive
Enhanced Keyboard
2 Serial/1 Parallel Port
DOS 5.0 with manual
Lifetime Labor Warranty
1 yr. parts

Mono 40MB	VGA(.41) 40MB	VGA(.41) 80MB
$699	$899	$949

System Add-Ons

2400 Baud Modem	$40
96/96 Baud Fax/Modem	$230
Logitech MouseMan	$79
Additional Memory, per MB	$35/50
Noise Killer	$49
1.2 Floppy/1.44 Floppy	$63/57
CPU Cooling Kit	$25

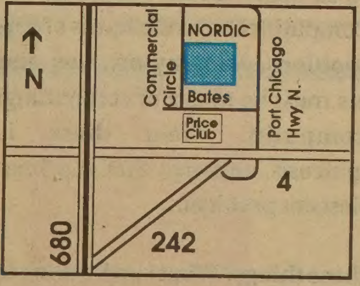
FAN NOISE

NOISE KILLER™
Keep Your Office Quiet

Only $49 With Any New **NORDIC** System

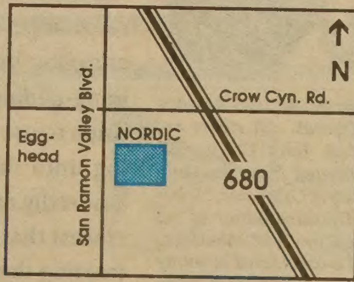
NORDIC COMPUTERS
Concord

5060 Commercial Circle, Unit A
Concord, CA 94520
(510) 687-3050
M-F 10:00-6:00 • Open Sat. 10:00-4:00



NORDIC COMPUTERS
San Ramon

2438 San Ramon Valley Blvd.
San Ramon, CA 94583
(510) 743-9390
M-F 10:00-6:00 • Open Sat. 10:00-4:00



VISA **Prices subject to change without notice. Dealer inquiries welcome.** MasterCard

These Things Are Killing Us

Or Any Excuse Not To Work (Another Fake Interview)

BY JOHN C. DVORAK

There are meetings, there are support groups, there are all sorts of problems people are having with keyboards and power lines and monitors that zap you until you're sterile. Wanting to know more, I sought out the knowledge of an expert in the new field of computer medicine—Phineas Fishbein.

This is an unusual field, computer medicine—how did it come about?

Well, when the microcomputer was first introduced I began to see a number of unusual joint and nerve damage in a small number of people. At first the cases were extremely rare, but perplexing nonetheless. Then as the popularity of the microcomputer began to boom, the number of injuries increased tenfold.

DVORAK'S LAST COLUMN

Can you give me an example of one of these injuries?

Well, when Apple came out with the Macintosh I began to see a great many people with osteo...well, in laymen's terms, stiff wrist. I did not at first make the correlation, however. It was not until I myself began to utilize a Macintosh for my own entertainment that I became cognizant of its unusual properties.

So, is this how CompuMedicine began?

Oh my, yes. The Mac was the seed of inspiration. I began to understand the full implication of its effects on the musculoskeletal system.

Do you still use your Mac?

Oh, no! I now believe the original Mac to be very dangerous. They alone account for more crippling injuries than football, worse than hang-gliding. There are people who will continue to use them, just as people continue to jog until they can barely walk. But I most assuredly cannot take the risks. No, no. The closest that I get to a computer these days is treating the injuries.

What maladies have you isolated, so far?

The manifestations are numerous. Computitis has two basic subgroups, skeletal and muscular. Within the skeletal, there are an additional two major subgroups, of which I will give the example of the common compuosteomyelitis, a condition characterized by pain in the finger joints, most usually the knuckle, relating to excessive keyboard percussive tapping...

Excuse me?

...which often occurs when the user of the device uses excessive force on the keyboard. This injury is compounded by touch typing, which utilizes all eight fingers and one thumb.

Does this mean that using two fingers in a hunt-and-peck is better?

No, not better. Two fingers are still traumatized. Only the remaining six are spared.

There've been some articles on eyestrain and monitors. Do you have any comments on this?

Sir, I've not completed my response to the first query. Now where was I? Oh yes. One skeletal problem that I believe can be avoided is compu-scoliosis, a curvature of the spine. This can be completely avoided by the use of a bar stool. The stool should be several inches higher than the desk top.

So you lean down?

Precisely. Oh, as to your second question. I advise using yellow ski goggles at all times while gazing at the monitor. Prevents eye strain.

What other problems have you seen?

There are so many. Gosh. The condition known as Computitis Gravis Obliqui is of epidemic proportions. And, my my, you and your readers must be aware of compufungi tineus computiti. Then there is monocompuleosis, although that is primarily an adolescent problem...

What are these things? What can be done to avoid them?

Compufungi tineus computiti is a terrible skin problem. It can be completely avoided if one takes care to wipe down a multiuser keyboard prior to use. At the very least, rubber gloves should be used. Monocompuleosis is very common with teens who use the older, hand-me-down computer with monocolor screens. A pervading fatigue accompanied by blinking and tearing of the eye are the main symptoms. As yet the only cure is total bed rest.

That's terrible.

It's certainly not as bad as Flopdiskdinkitis. Although the research has not been conclusive, it seems that constant contact with magnetic media such as floppy disks causes a sharp decline in the libido of most males. It's believed that the testosterone levels are somehow reduced by the exposure.

I had no idea that computers were the cause of so many problems.

Did you know that one simple computer can cause more than three hundred different illnesses? It's more of a health hazard than the common housefly.

Now, I don't believe that. I use them all the time and I've never become ill.

Have you ever had dizzy spells, nausea, o a ringing in the ears?

Why yes. But...

Have you ever had a very dry mouth, sweat palms, and made numerous typing mistakes

Yes.

Do you ever find yourself staring at th screen?

Yes, but what are you getting at?

And, have you ever become wildly frus trated with a new program because yo couldn't get it to work properly?

Come on, everyone does that.

Have you been engrossed in the progra game, whatever, and been unable to tear you self away?

Yes, but that's my job.

You've just answered yes to the five war ing signs of computer disease.

I don't feel well...I'm going home to bed!

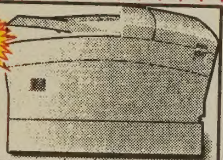
Good idea! ■

Copyright © 1993 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

Silicon Valley Loves Apple

Authorized Reseller

Apple® Select 300 LaserWriter®

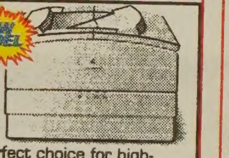


- *Resolution:* 300 dots per inch
- *Printing speed:* 5 pages per minute
- *Memory:* 512K RAM, which data compression/decompression software that allows the LaserWriter Select 300 to operate as if it has 2.5MB RAM; expandable to 4.5MB RAM
- *Supported Languages:* Adobe PostScript (makes use of Apple QuickDraw; PostScript supports available optional upgrades)
- *Fonts:* 39 scalable TrueType fonts
- *Interface:* High-speed (833K) RS-422 serial interface
- *Paper tray size:* 250 sheets or 15 envelopes
- *Networking:* Printer sharing through GreySchare software

#1767773

$799

Apple® LaserWriter® Pro 600



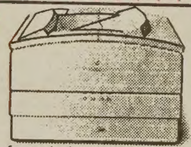
Apple® Laserwriter® Pro 600. The perfect choice for high-performance printing.

- 25-MHz Motorola 68030 processor.
- 600 dots per inch resolution.
- 8MB memory expandable to 32MB
- 100 and 250 sheet tray
- Option 500-sheet cassette and 75-envelope feeder
- Comes with 64 scalable fonts
- All Macintosh products are design to work together.

#1757806

$1999

Apple® LaserWriter® Pro 630



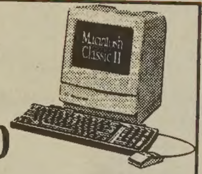
Apple® Laserwriter® Pro 630. The perfect choice for high-performance, high-resolution printing.

- 25-MHz Motorola 68030 processor.
- 600 dots per inch resolution.
- Optional 300dpi plus PhotoGrade™
- 8MB memory expandable to 32MB
- 100 and 250 sheet tray
- Option 500-sheet cassette and 75-envelope feeder
- Comes with 64 scalable fonts
- All Macintosh products are design to work together.

#1757965

$2299

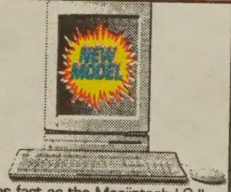
Apple® Macintosh® Classic® II 4/40


Macintosh Classic II

68030 16MHz CPU
40MB Hard Drive
4MB of RAM Expandable to 10MB
Supports 7 SCSI Devices
Built-In Display • Appletalk Built-in
#1713497

\$879^{99}

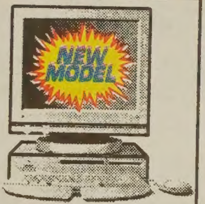
Apple® Macintosh® LC III 4/80



60830 25MHz CPU
4MB RAM Expandable to 36MB
80MB Hard Drive • Almost twice as fast as the Maciintosh LC II
Supports 7 SCSI Devices
2 Serial Ports • ADB Port
Video Port • SCSI Port
Built-In Appletalk
Monitor Not Included #1765793

$1299

Apple® Macintosh® Centris™ 610 4/80



Now there's an affordable way to take advantage of the power of the 68040 microprocessor: the Apple Macintosh Centris 610 desktop personal computer.
Like all Macintosh Centris computers, the Macintosh Centris 610 delivers the high performance you need to get the job done in a demanding environment, while giving you the flexibility to configure your system to meet your needs today and tomorrow.
Monitor Not Included #17657748

$1699

Apple® Macintosh® Centris 650 8/230

Based on the fast, 25-megahertz Motorola 68040 CPU, the Macintosh Centris 650 provides affordable high performance. The Macintosh Centris 650 comes with 4 megabytes of RAM and a built-in 8K cache for speed up to 2.5 times that of the Macintosh IIci and IIvx. For increased performance, you can expand memory up to 132 megabytes or add an optional math coprocessor. Designed for performance and flexibility, the Apple Macintosh Centris 650 is the most expandable Macintosh Centris computer. Monitor Not Included #1765771

$2999

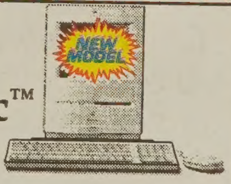
Apple® Macintosh® IIvx™ 4/230

Macintosh IIvx

68030 32MHz CPU • 32K Memory Cache
68882 Math Coprocessor • 512K VRAM
4MB RAM Expandable to 20MB 230MB Hard Drive
3 NuBus Slots • Supports 7 SCSI Devices
2 Serial Ports • 2 ADB Ports • Appletalk Built-In.
Monitor & Keyboard extra.
#1738502

$1899

Apple® Macintosh® Color Classic™ 4/80



68030 - 16MHz
4MB RAM Expandable to 10MB
Internal Super drive • 80MB Hard Drive
Two Serial Ports / Two ADB Ports SCSI Ports
10" Diagonal SONY Trinitron display
#1767430

$1349

Fry's ELECTRONICS

Home of Fast, Friendly , Courteous Service

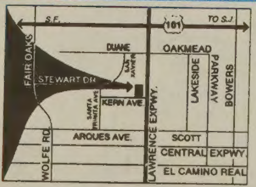
STORE HOURS:
MON-FRI
8AM-9PM
SATURDAY
9AM-8PM
SUNDAY
9AM-7PM

VISA AND MASTERCARD

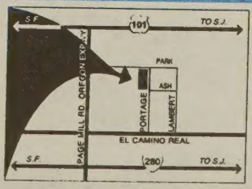
Prices good through March 29, 1993

Limit Rights Reserved
Not Responsible For
Typographical Errors

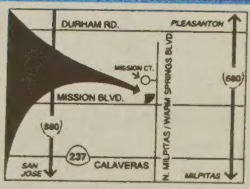
CORPORATE P.O. FAX # (408)735-6800


S.F.
101
TO S.J.
FAIR OAKS
DUANE
SAN XAVIER
OAKMEAD
STEWART DR
SANTA TRINITA AVE
KERN AVE
LAKESIDE
PARKWAY
BOWERS
WOLFE RD.
ARQUES AVE.
LAWRENCE EXPWY.
SCOTT
CENTRAL EXPWY
EL CAMINO REAL

SUNNYVALE
1177 Kern Ave.
(408) 733-1770


S.F.
101
TO S.J.
OREGON EXPWY
PAGE MILL RD.
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

PALO ALTO
340 Portage Ave.
(415) 496-6000
(415) 496-6060


DURHAM RD.
PLEASANTON
MISSION CT.
MISSION BLVD.
N. MILPITAS / WARM SPRINGS BLVD
680
880
237
SAN JOSE
CALAVERAS
MILPITAS

FREMONT
440 Mission Ct.
(510) 770-FRYS (3797)
(510) 770-3700

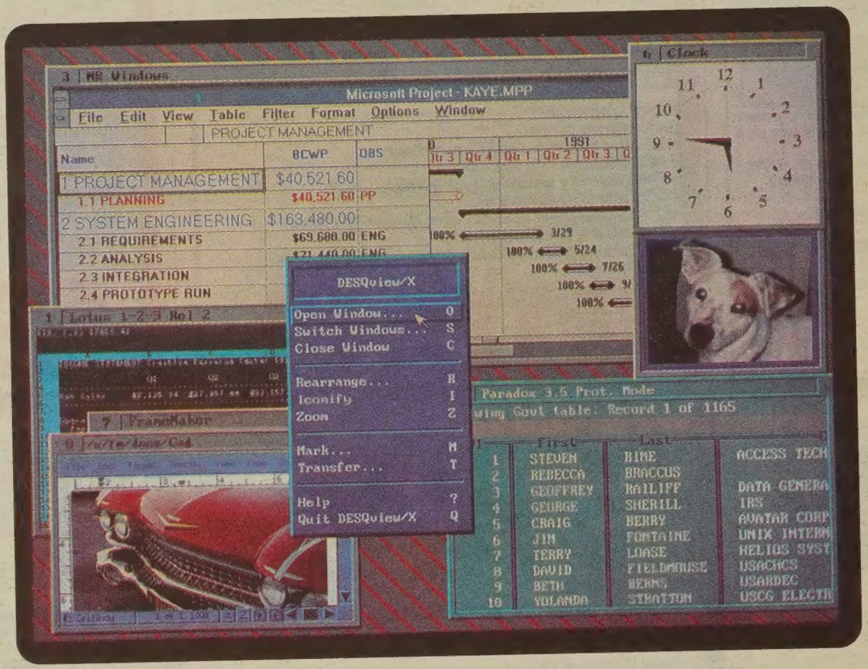
Turn your measly PC into a graphical workstation.

Looks the Way You Want

DESQview/X supports sculptured menus, customizable backgrounds, graphic buttons for launching programs or sets of programs, icons and online context-sensitive help to make computing easy and fun. If you are a DESQview user, you'll find DESQview/X very familiar, with an improved look.

Multitasks DOS & Windows Programs

Quarterdeck is the acknowledged pioneer in multitasking and DESQview/X gives you high performance multitasking, with graphical DOS and MS-Windows programs running side-by-side.



Name	BCWP	OBS
1 PROJECT MANAGEMENT	$40,521.60	
1.1 PLANNING	$40,521.60	PP
2 SYSTEM ENGINEERING	$163,480.00	
2.1 REQUIREMENTS	$69,680.00	ENG
2.2 ANALYSIS		
2.3 INTEGRATION		
2.4 PROTOTYPE RUN		

Record 1 of 1165

	First	Last	
1	STEVEN	BIME	ACCESS TECH
2	REBECCA	BRACCUS	
3	GEOFFREY	RAILIFF	DATA GENERA
4	GEORGE	SHERILL	IRS
5	CRAIG	BERRY	AVATAR CORP
6	JIM	FONTAINE	UNIX INTERN
7	TERRY	LOASE	HELIOS SYST
8	DAVID	FIELDHOUSE	USACHCS
9	BETH	BERNS	USARDEC
10	YOLANDA	STRATTON	USCG ELECTR

Works the Way You Want

Move immediately from one program to the next. Mark and transfer text. Define keystroke or button-driven macros. Set up sets of programs to open together at a keystroke or mouse click so you're ready to work on your projects. You can change menus, add sub-menus. Change commands. What's more, you can specify window size and color. And if you are using DOS text programs, you can set them up so that the font changes size as you change the size of the window. We call this feature scalable DOS windows (see the Lotus window on the right side of the screen).

DESQview/X is a powerful, efficient environment for increasing productivity.

DESQview/X gives you an efficient graphical multitasking windowing environment with a doorway to the future

Serious PC users, rejoice.

At last. For everyone waiting for a GUI (graphical user interface) that doesn't demand a major sacrifice in speed and hardware overhead, we present The Answer.

DESQview/X is a joy to use, with its editable pop-up menus, customizable backgrounds and icons. With its built-in Adobe Type Manager, it gives you highly readable scalable DOS windows. It gives you mouse control and keyboard equivalents for every command. It lets you define keystroke macros to speed repetitive tasks. File management and mark and transfer. It gives you 8514/A, Super VGA and DGIS high resolution graphics support for great detail and more windows. Plus maximum memory usage with our best-selling QEMM-386 memory manager—included with DESQview/X.

And for all this power, it needs only a 386 or 486 PC with 4MB RAM and 40MB hard disk.

1991
BYTE
AWARDS
OF
EXCELLENCE

Welcome to the windowing, multitasking graphical user environment that transforms the software you already own.

Yes!
Please Send:

Qty	Product	5-1/4	3-1/2	Each	Totals
	DESQview/X			$275.00	
	DESQview/X Network Mgr. (TCP/IP)			$200.00	
	OPEN LOOK interface			$200.00	
	OSF/Motif interface			$250.00	
	Shipping & Handling $10 (Canada & USA only)				
	California Residents add 8.25%				
	Grand Total				

Payment method
☐Visa ☐MasterCard Expires ____/____
Card # ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Or call (800) 354-3222 for faster service

Please allow 3 weeks for delivery

Name____________________
Address____________________
City____________________ State____ Zip________

Registered users of Quarterdeck products are eligible for a special offer. Call (800) 354-3222 7AM-5PM PST.

Quarterdeck

Quarterdeck Office Systems, 150 Pico Boulevard, Santa Monica, CA 90405 (310) 392-9851 Fax (310) 314-421

©1992 Quarterdeck Office Systems. Trademarks are property of their respective owners.

CompUSA
San Bruno (415) 244-9990
Santa Clara (408) 554-1733

Fry's Electronics
Sunnyvale (408) 733-1770
Palo Alto (415) 496-6000
Fremont (510) 770-3797

800-Software
Berkeley (800) 888-4880

PC by Root
San Mateo (800) 347-0343
San Francisco (415) 923-0343